

NOISE!

The Grim Reaper of Weak Signal Reception



Rule #1 – Noise is NOT your Friend

- **Several years ago the only noise threat to your station was line noise**
 - Amateur radio was viewed as the noise & interference threat to consumer electronics
- **Today, consumer electronics generate significant noise and interference to amateur radio reception**

Worst Noise Generators

#1 Offender



#2 Offender



Worst Noise Generators

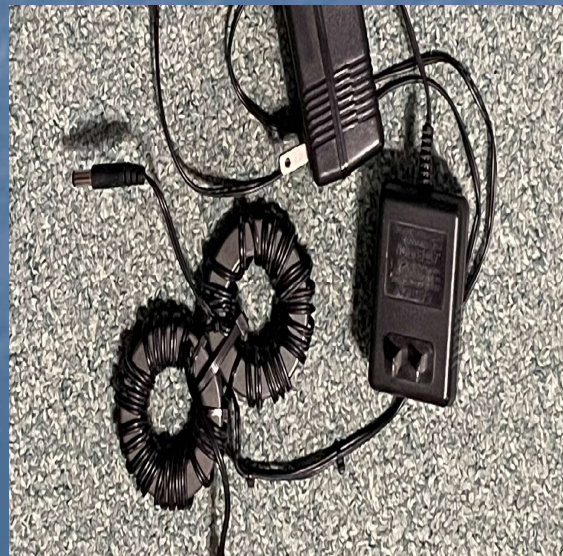
- **Others include:**
 - switching power supplies
 - Plasma TV's
 - Medical devices
 - LED lights, outside light & dimmer controls
 - The list is endless and they are everywhere!
- So what can a little old meek and mild ham do to "GET IN THERE AND WORK 'EM" if he can't hear them over the noise?

Clean Up Your Station First!

- This is Rule #1. Here are some guidelines:
 - Unplug all unused wall warts, better yet, don't use them but that's a tall order
 - If you must use a switching power supply, be very selective on what you purchase/use
 - Use high quality cables and connectors to interconnect all of your equipment.

Clean Up Your Station First!

- If you are using a 12 Vdc wall wart, cut the cable off and connect it to a 12 Vdc power supply. Throw the wart in the trash
- Can't live without it? Here's how to neuter a wall wart



Toroids

- Extremely effective – but MUST use the right ones
 - Do NOT buy something out of a tray at a hamfest or order one that simply advertises “Excellent RFI suppression”
- Use a #31 mix toroid
 - Mouser # 623-2631803802
 - Fair-Rite Part No:2631803802
 - If it's a DC voltage or control cable – WRAP IT!

Study K9YC's Paper

<http://www.k9yc.com/RFI-Ham.pdf>



Internet Modems & Routers

- Even if you're all wireless, you can still have noise issues
 - Any power or other cable connected to these devices is an antenna!
 - For CAT5 or 6, wrap several turns of the cable in a #31 toroid



Clean Up Your Station First!

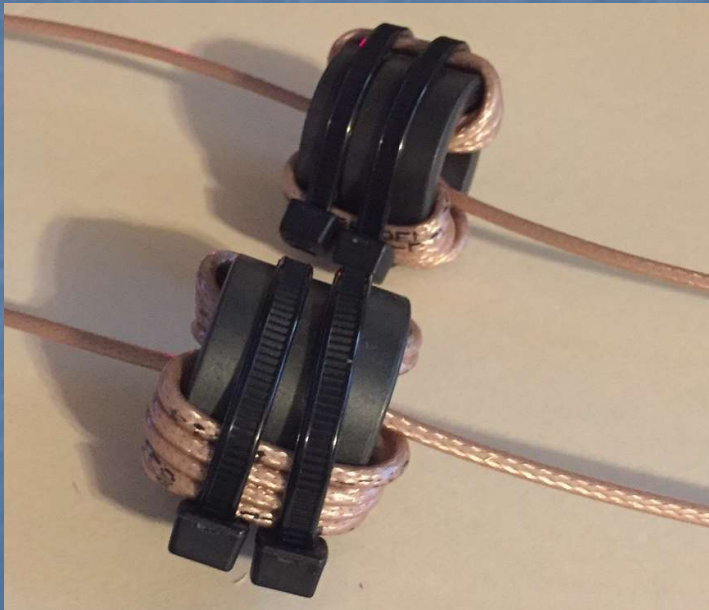
- If you must use a switching power supply instead of a linear supply, purchase one that is designed to filter out the noise

MFJ switching power supplies were designed by “RF engineers” and they took steps to properly filter the output

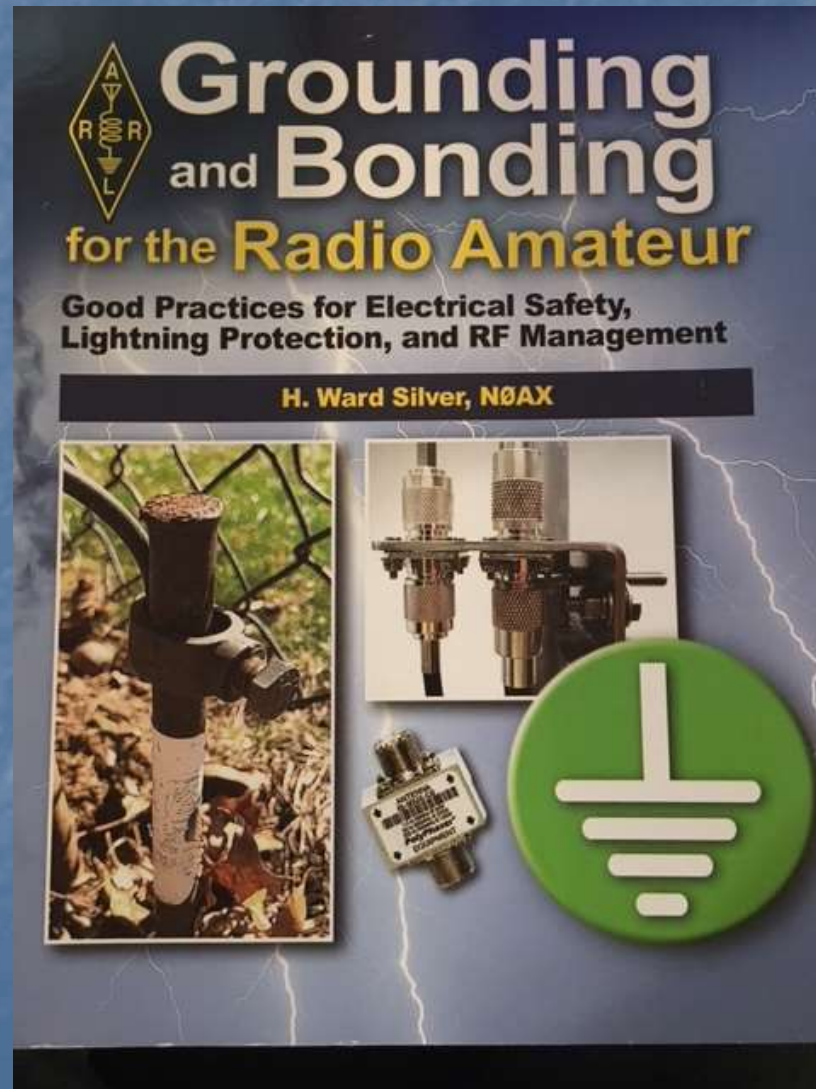


For Receive Antennas

- To eliminate common mode noise on the shield



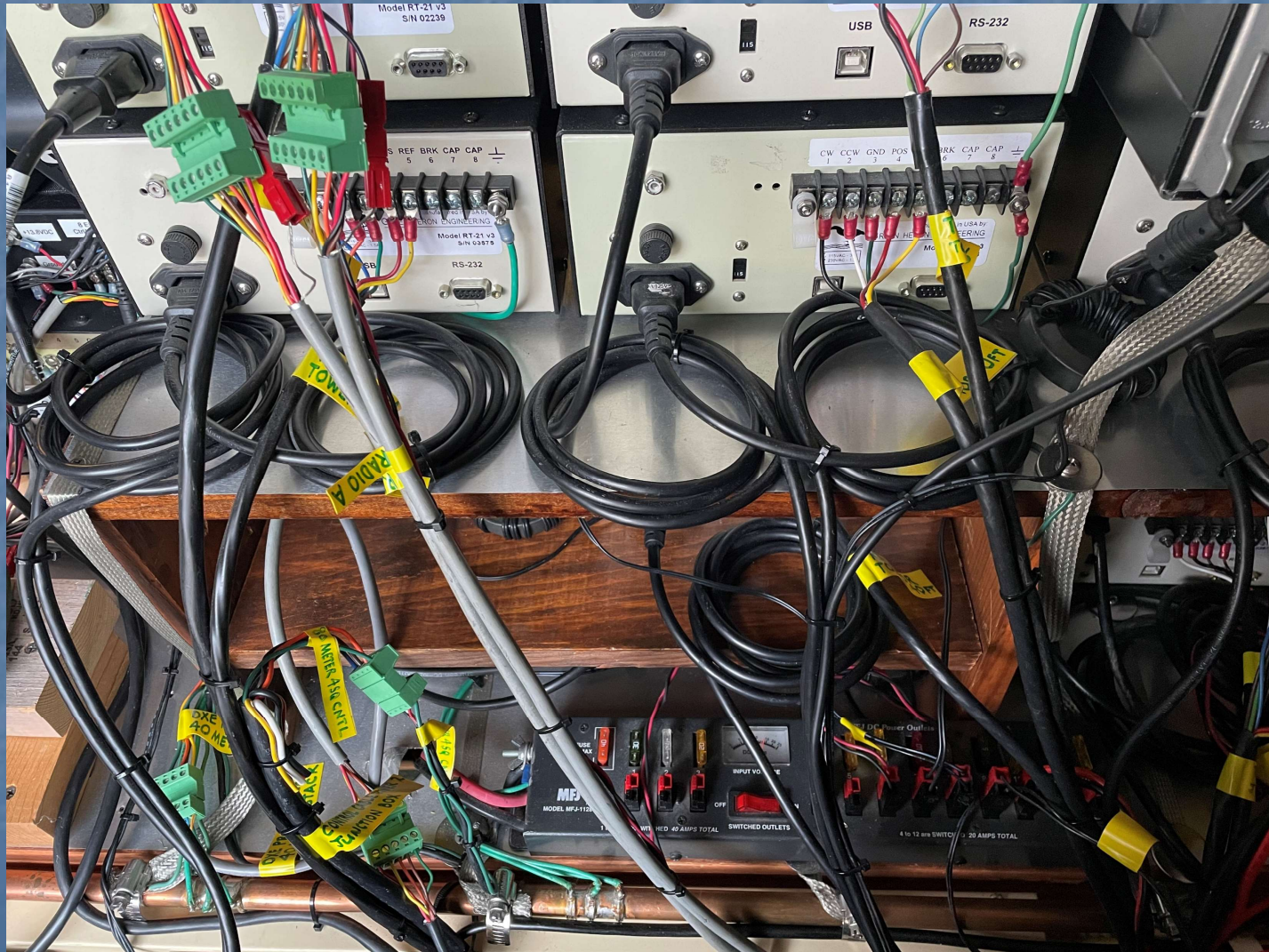
Other Station Improvements



Other Station Improvements



Other Station Improvements

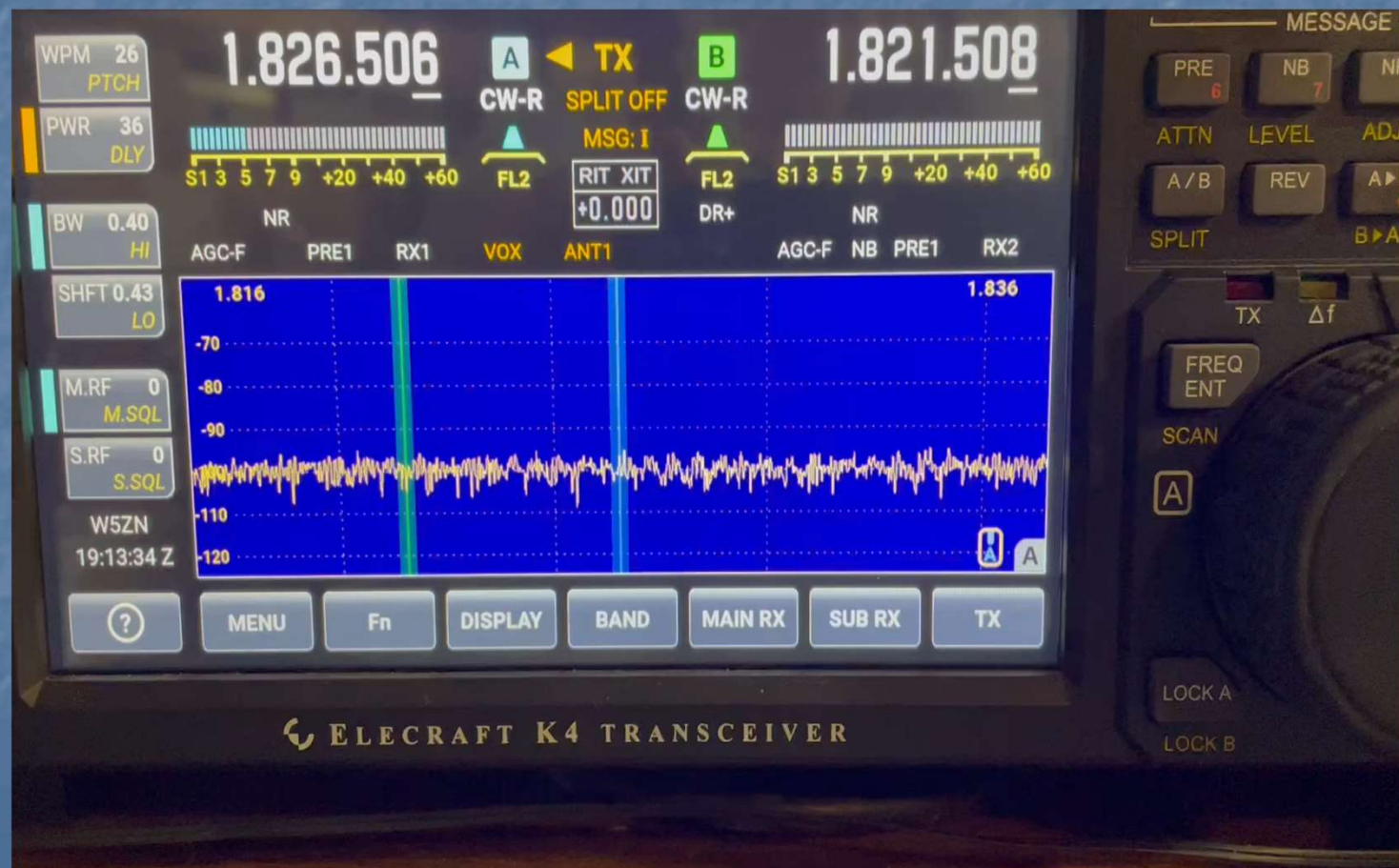


Now What?

- You're station is clean, but you have noise from somewhere
 - Not much you can do with noise that comes a neighbor.
- I have a horrible noise to the east on 160 meters.
 - Thought it was line noise it we have cleared all power line noise
 - Generated from a house $\frac{1}{4}$ mile away

Now What?

- Concluded it is a medical device or a grow lamp



Noise Cancelling Devices

Different models available

- Timewave ANC-4+
- MFJ 1026
- DX Engineering NCC-2



PM 26
PTCH

WR 36
DLY

W 0.20
HI

HFT 0.43
LO

M.RF 0
M.SQL

S.RF 0
S.SQL

W5ZN
21:56:34 Z

1.824.815

A ◀ TX
CW-R SPLIT OFF

B
CW-R

1.830.242



▲ FL1
MSG: I
RIT XIT
+0.00

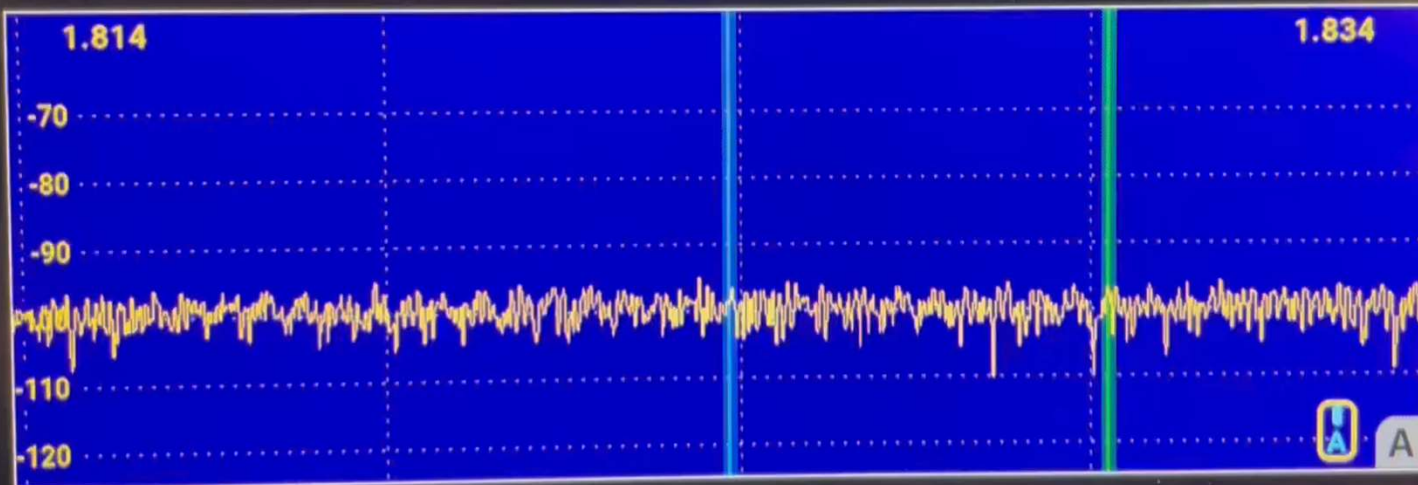
▲ FL1
DR+



AGC-F PRE1 RX1

VOX ANT1

AGC-F PRE1 RX2



?

MENU

Fn

DISPLAY

BAND

MAIN RX

SUB RX

TX



RADIO 1

RADIO 2





Get Rid of Your Noise

Then

GET IN THERE AND WORK 'EM!