# G7UHN Wired Network VHF Noise Reduction

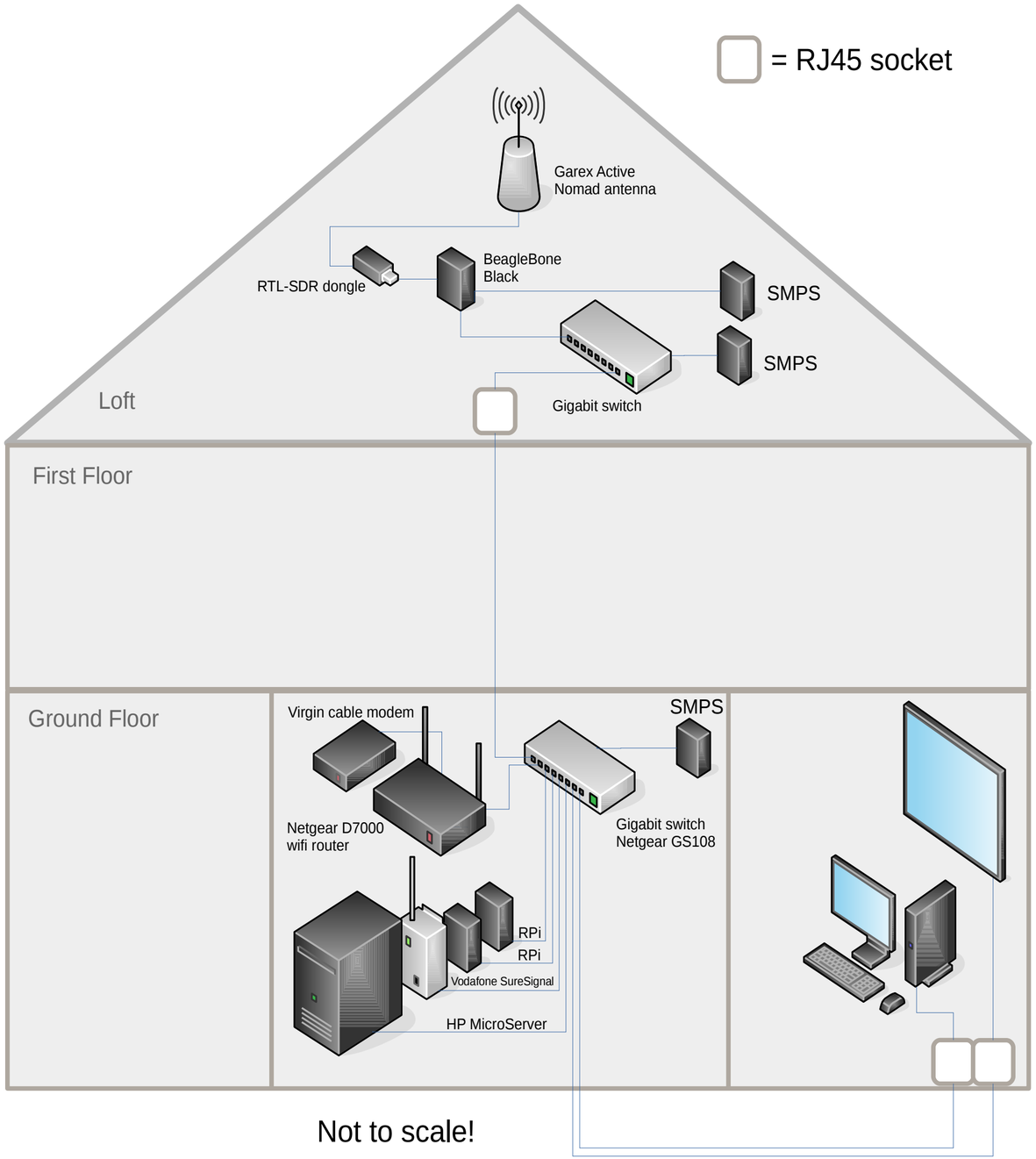
The following slides show progressive reduction of RF Interference at VHF caused by the wired network.

Initially, very high levels of noise are generated by the gigabit switch located near the active antenna in the loft. The gigabit switch is then removed with a consequent reduction in noise levels.

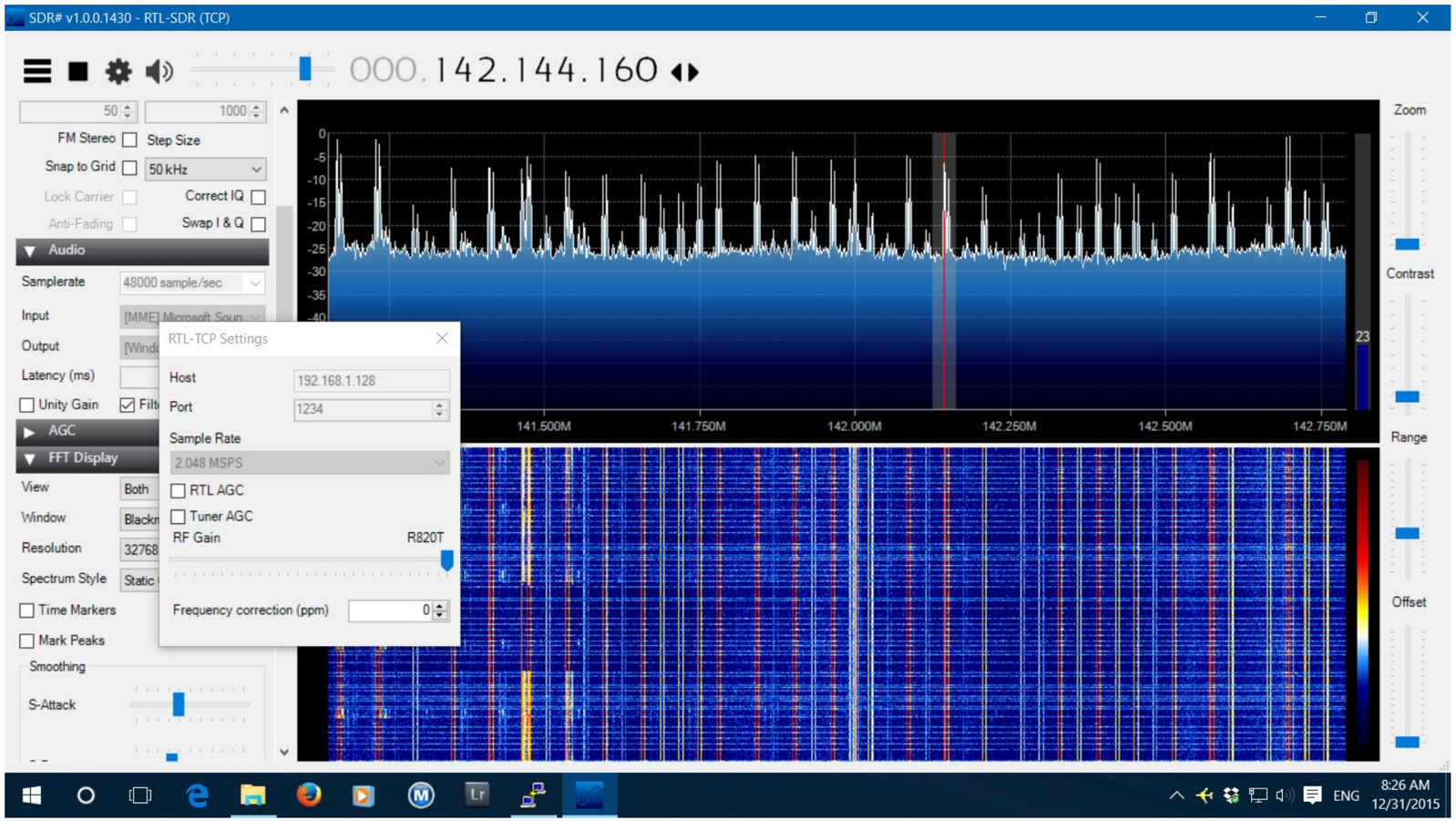
Ferrites are then applied at key points in the network to further reduce the remaining noise spikes.

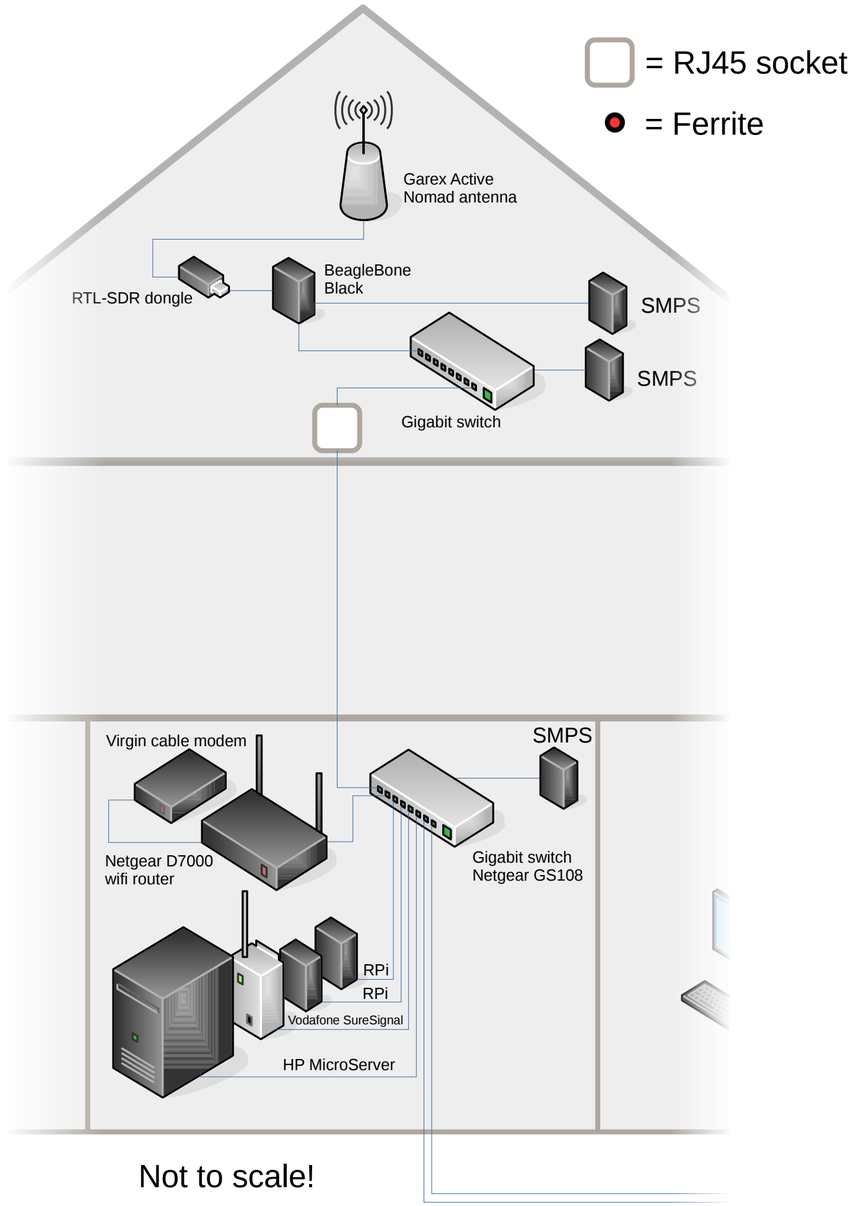
Finally, the gigabit switch in the loft is reintroduced, this time with ferrites applied and noise levels are much reduced.

More noise reduction can certainly be achieved with further application of ferrites but this worked example should demonstrate what can be achieved with relatively little effort.

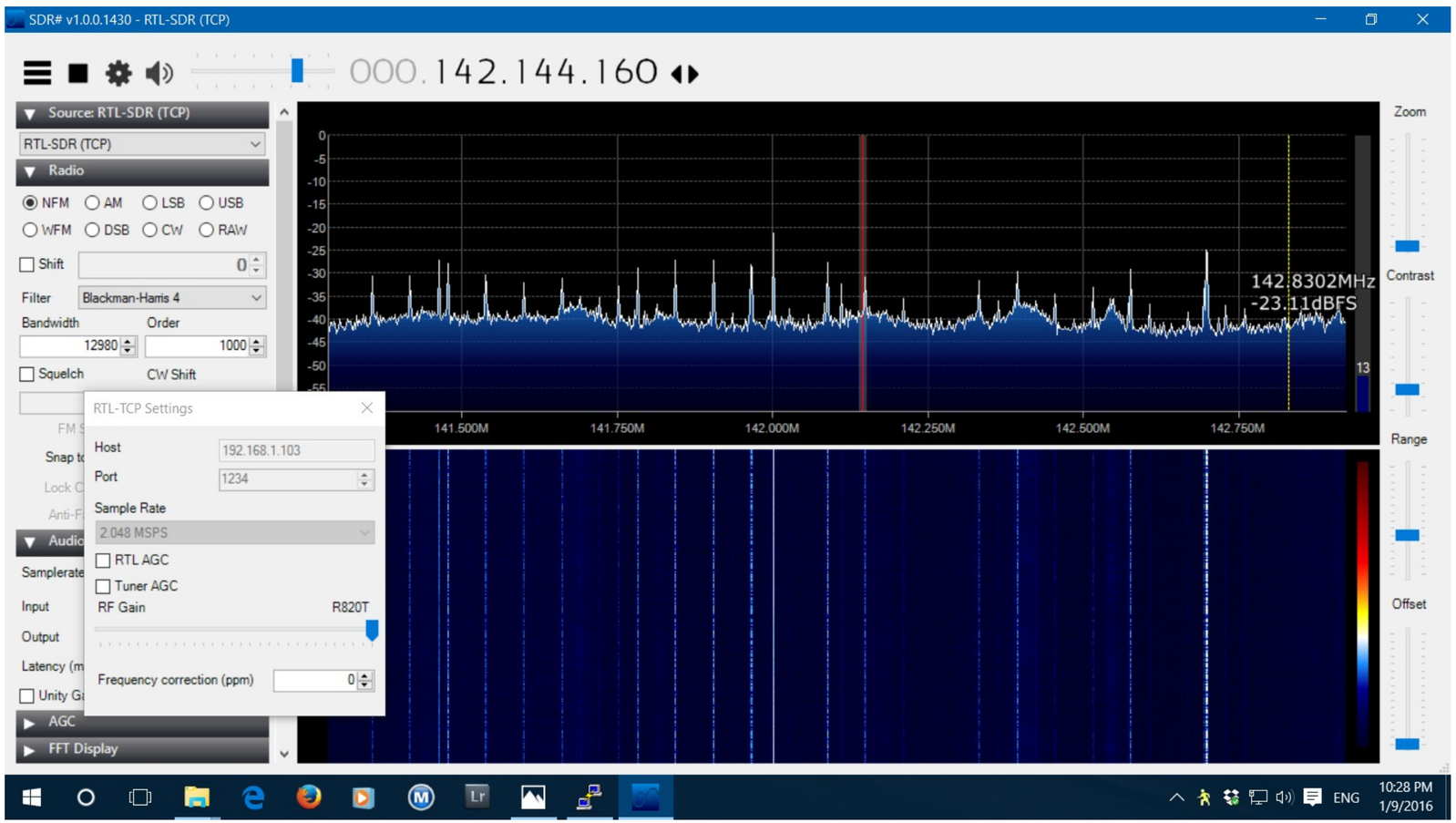


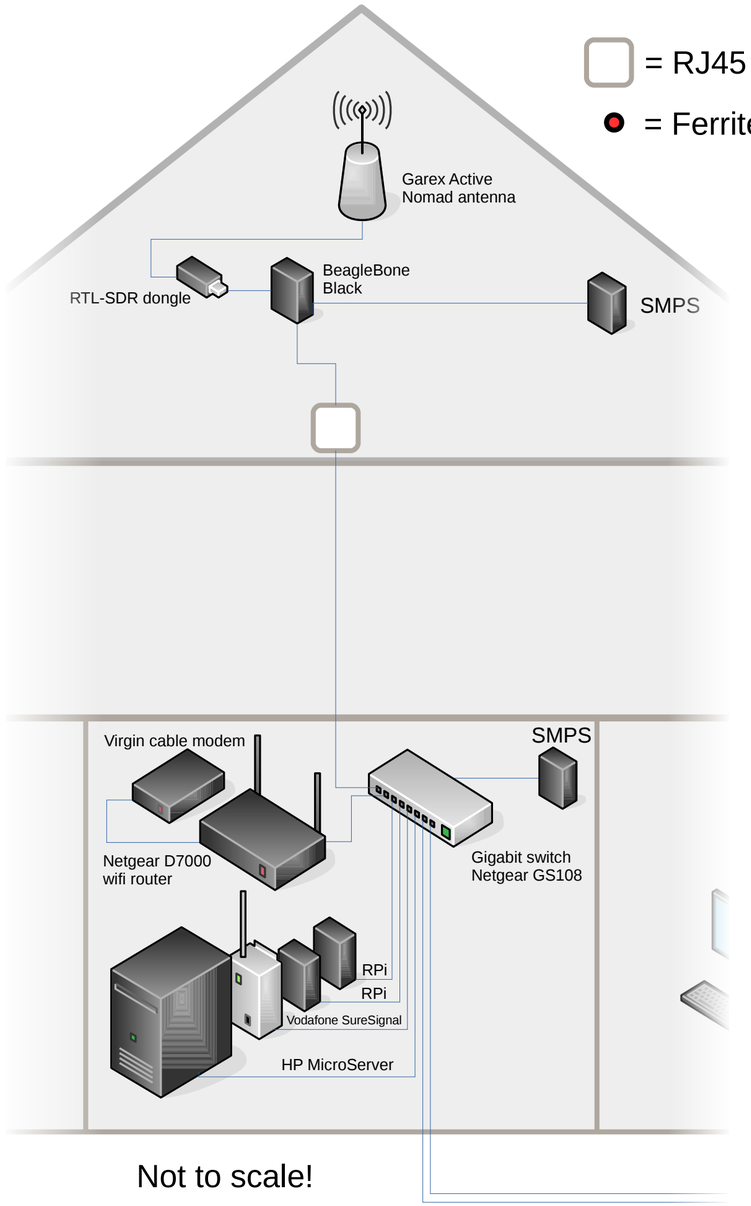
# 01 – Initial noise problem



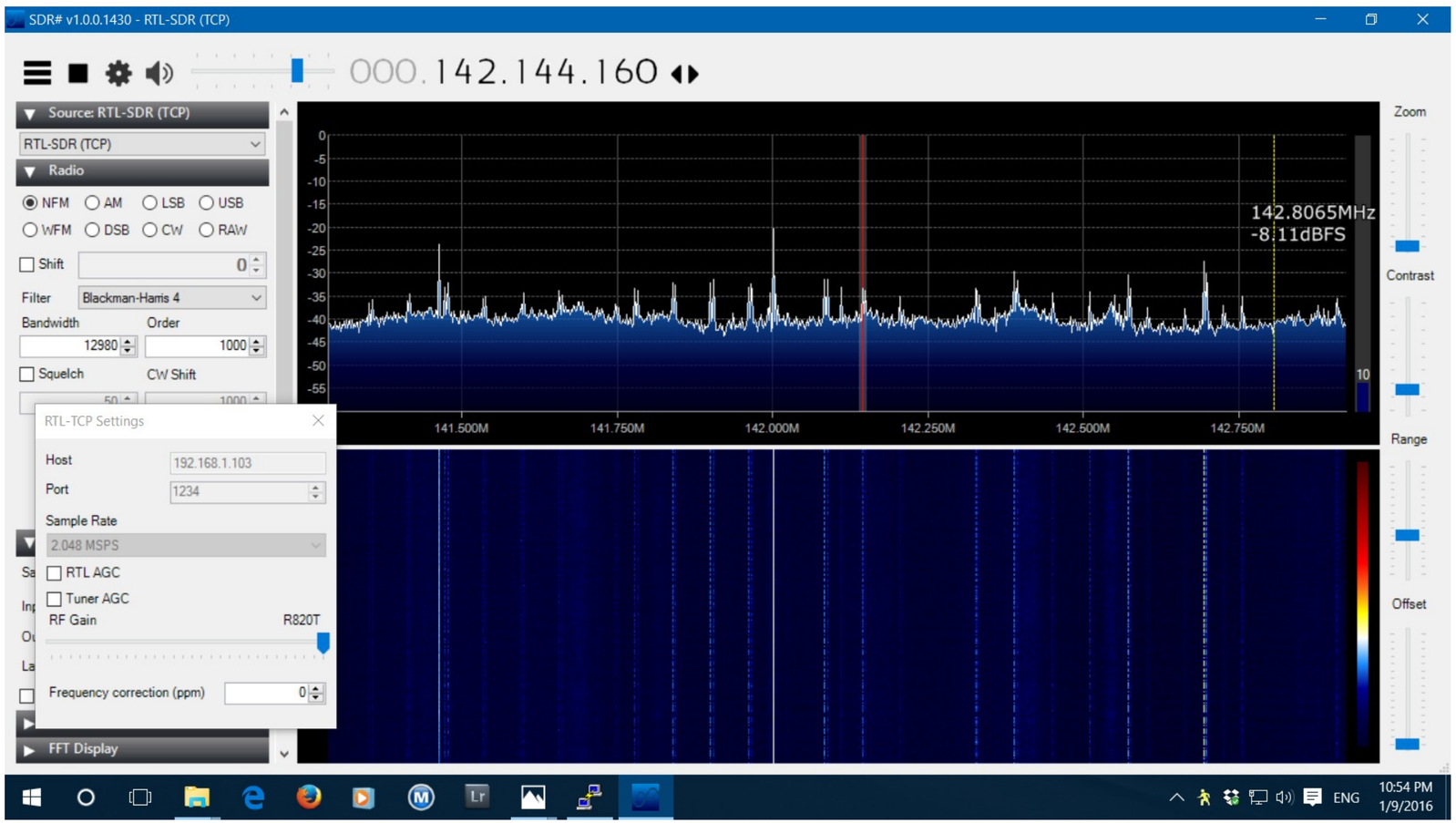



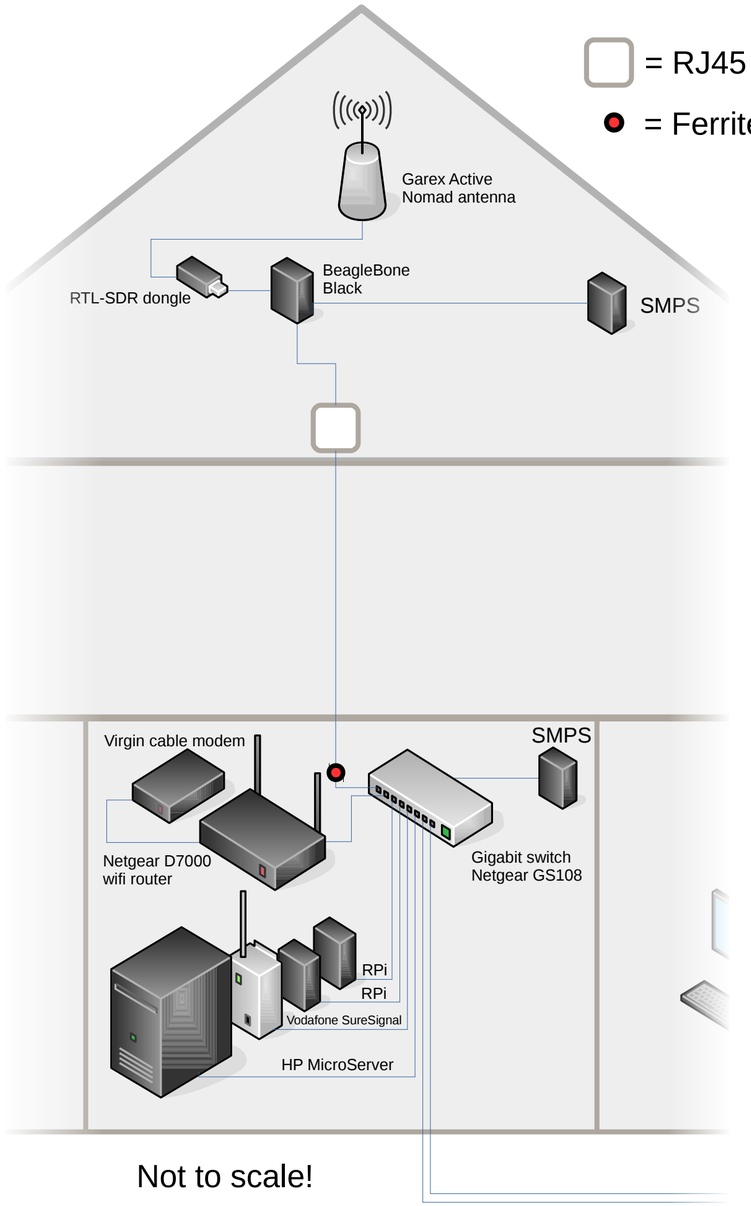
# 02 – Removed TPLink Switch from loft



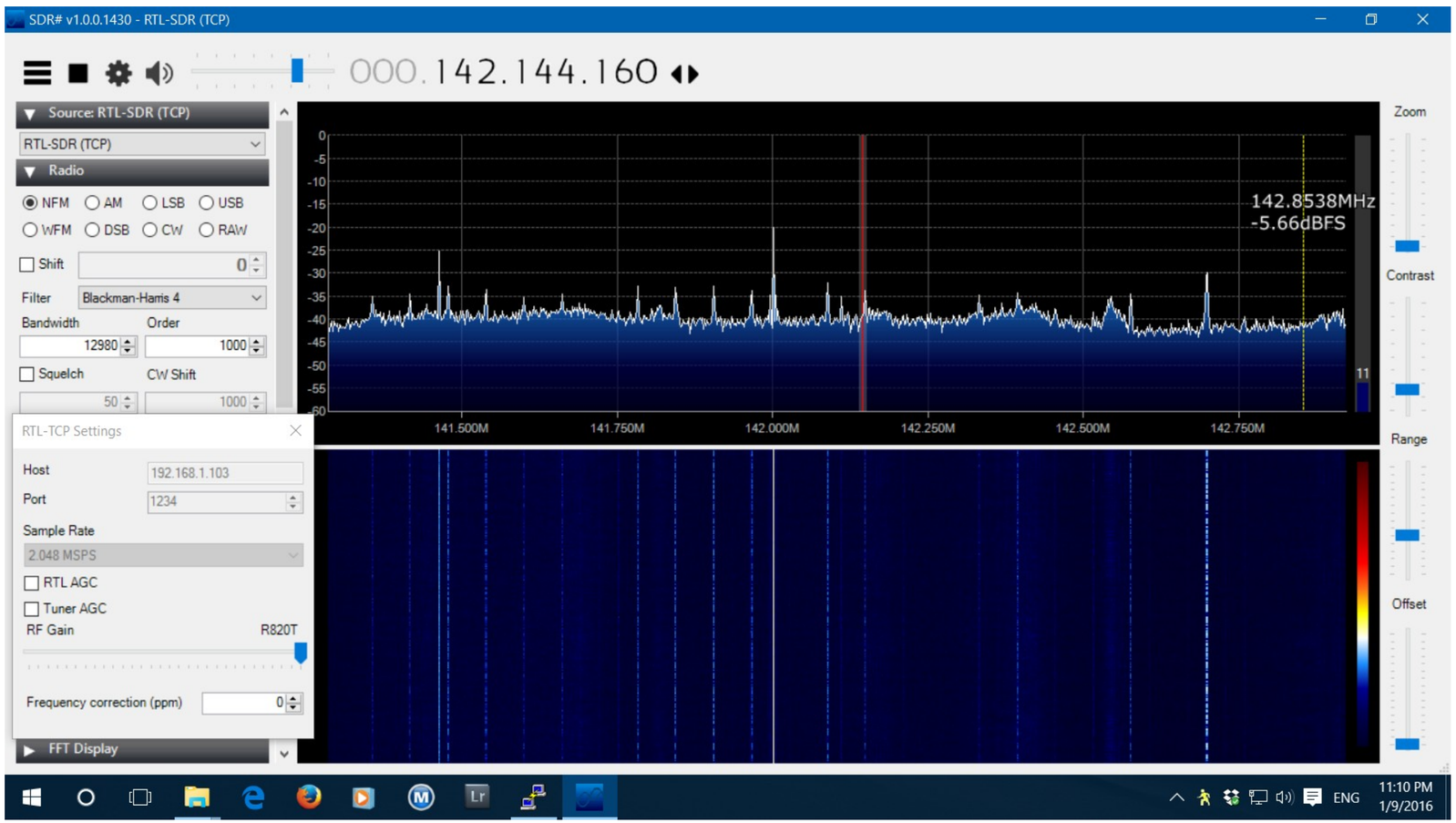



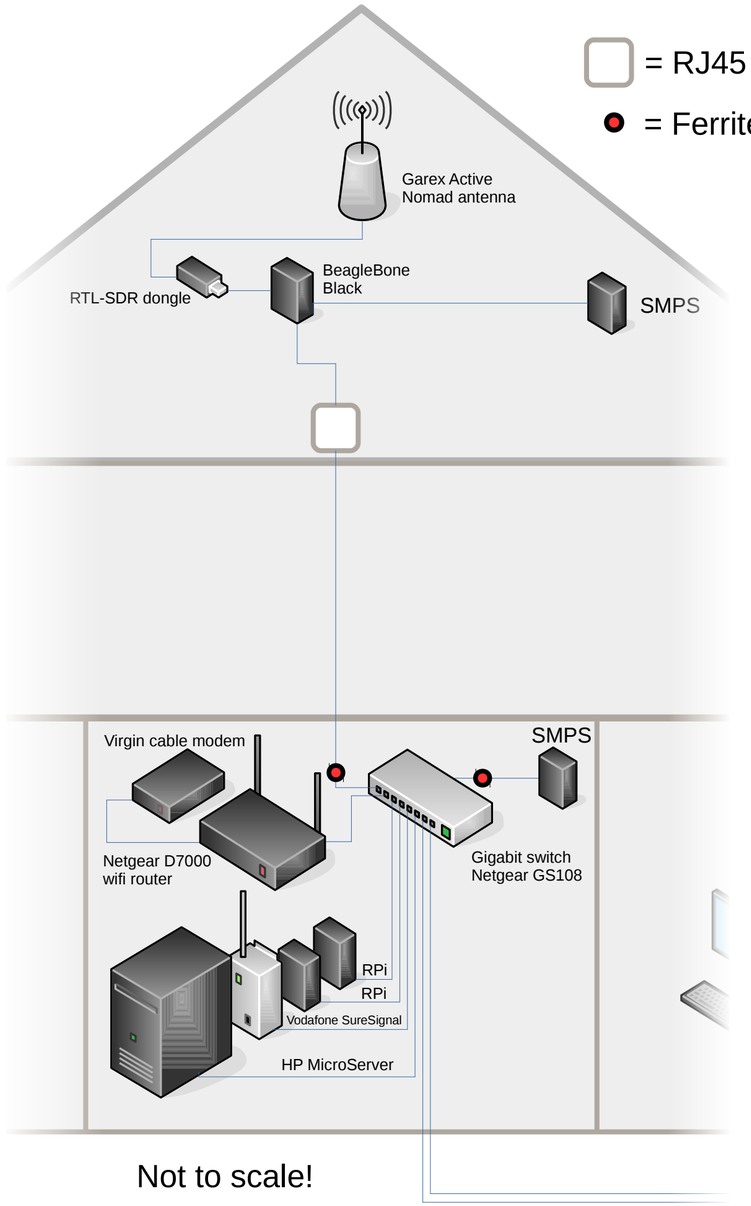
# 03 – Added 1st ferrite



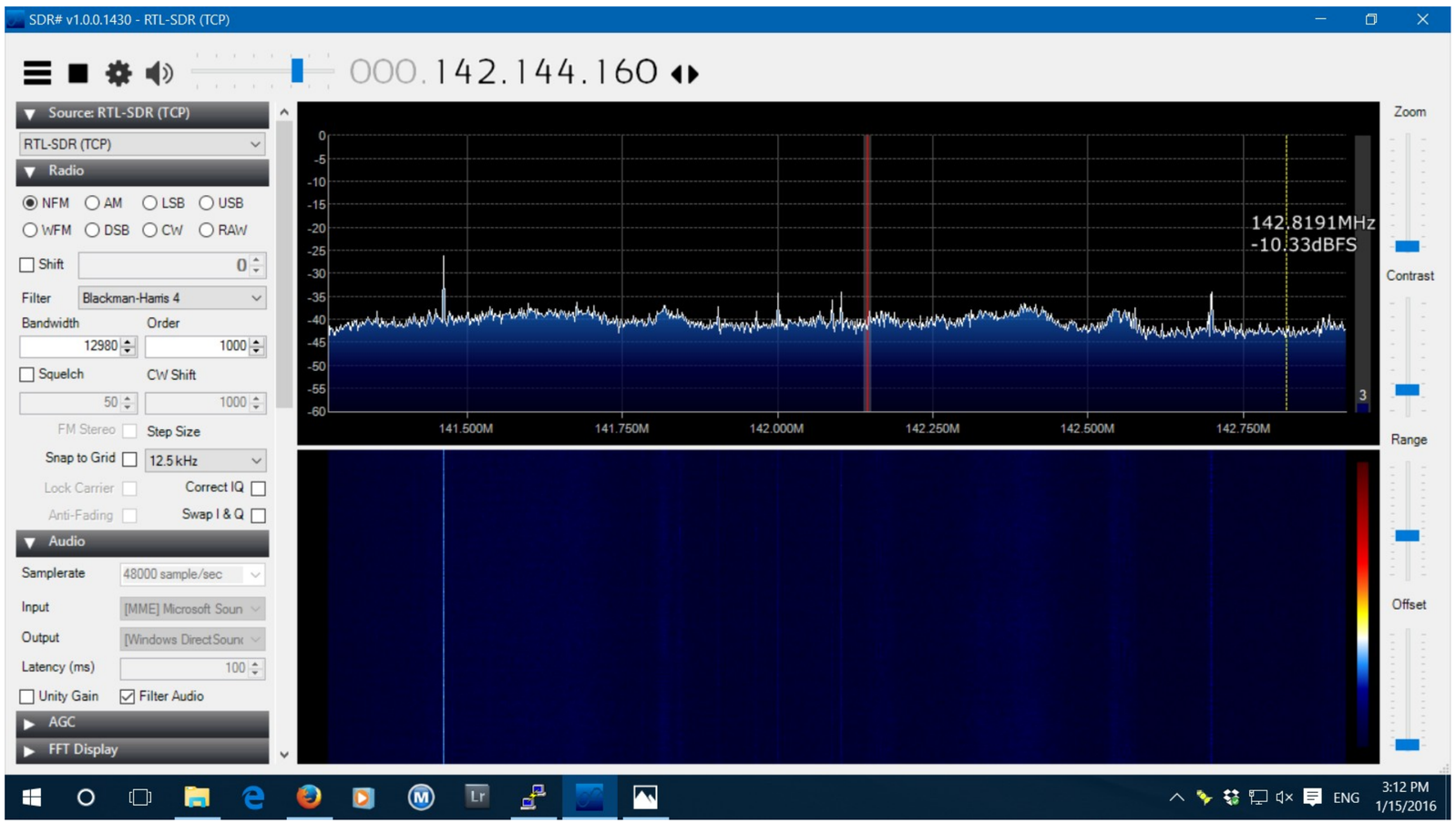



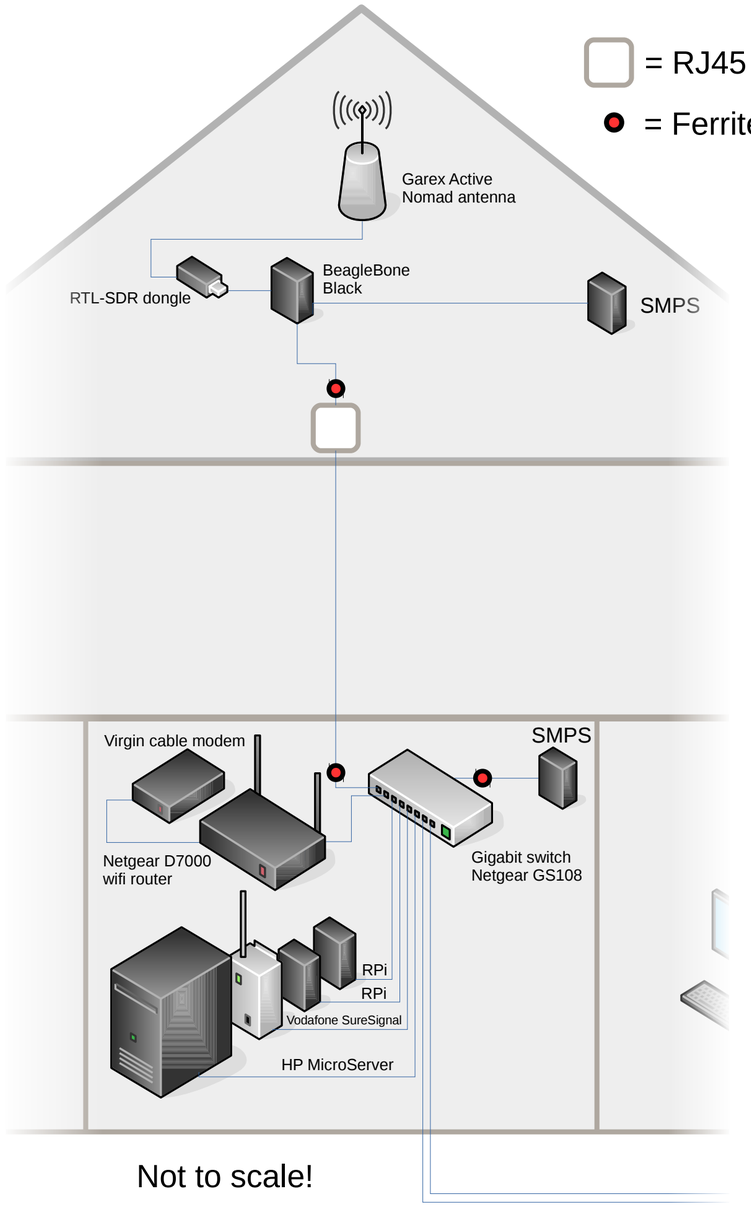
# 04 – Added 2nd ferrite



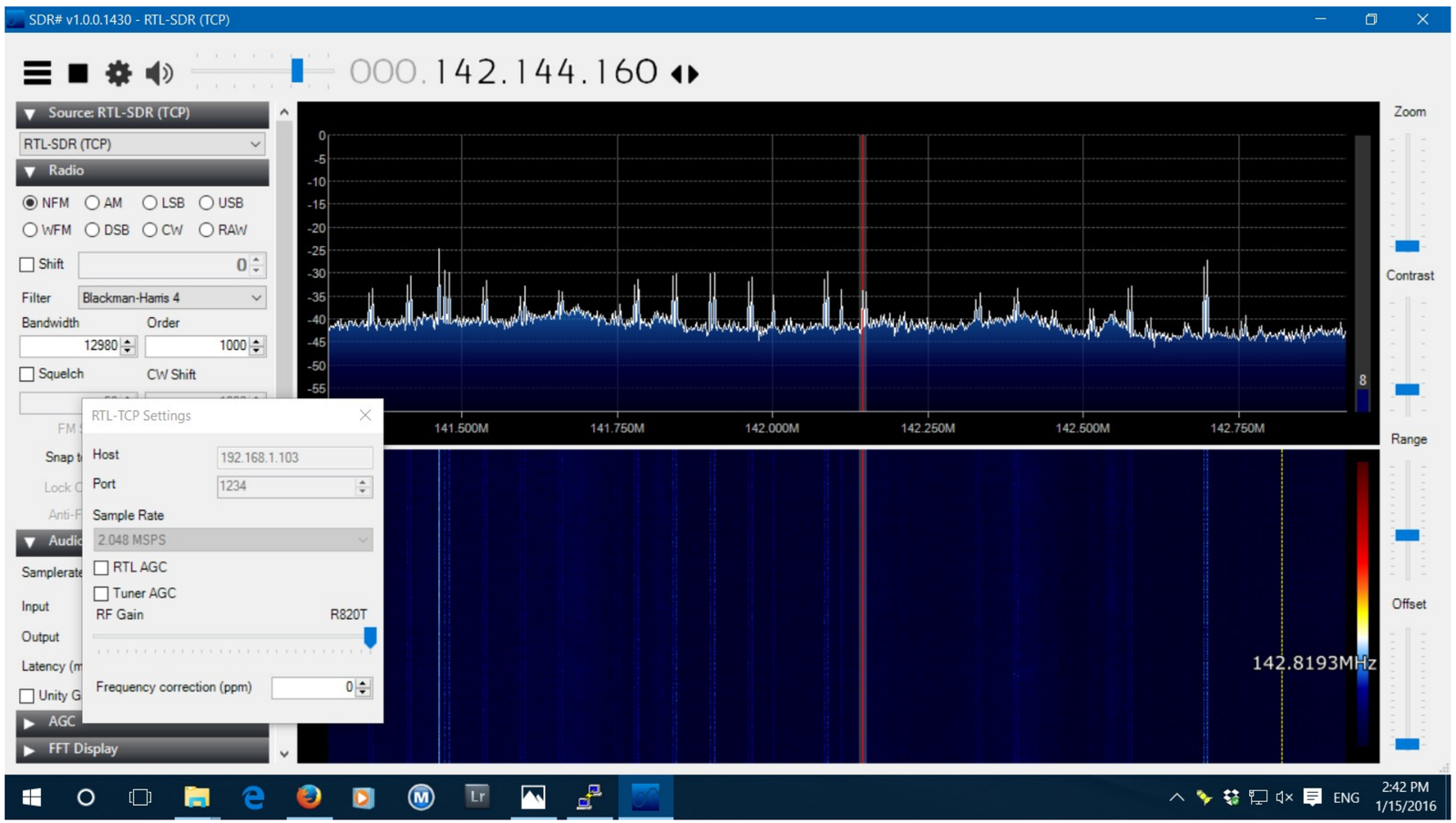



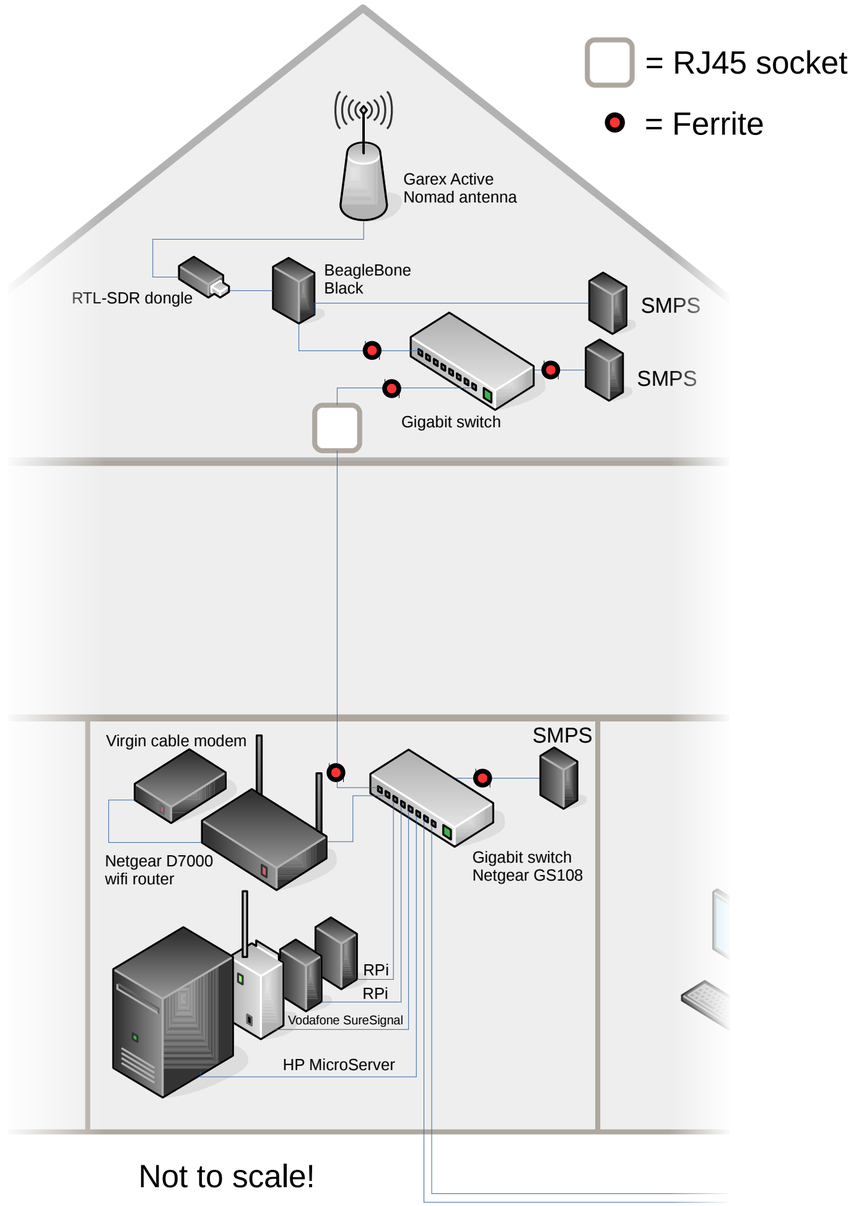
# 05 – Added 3rd ferrite



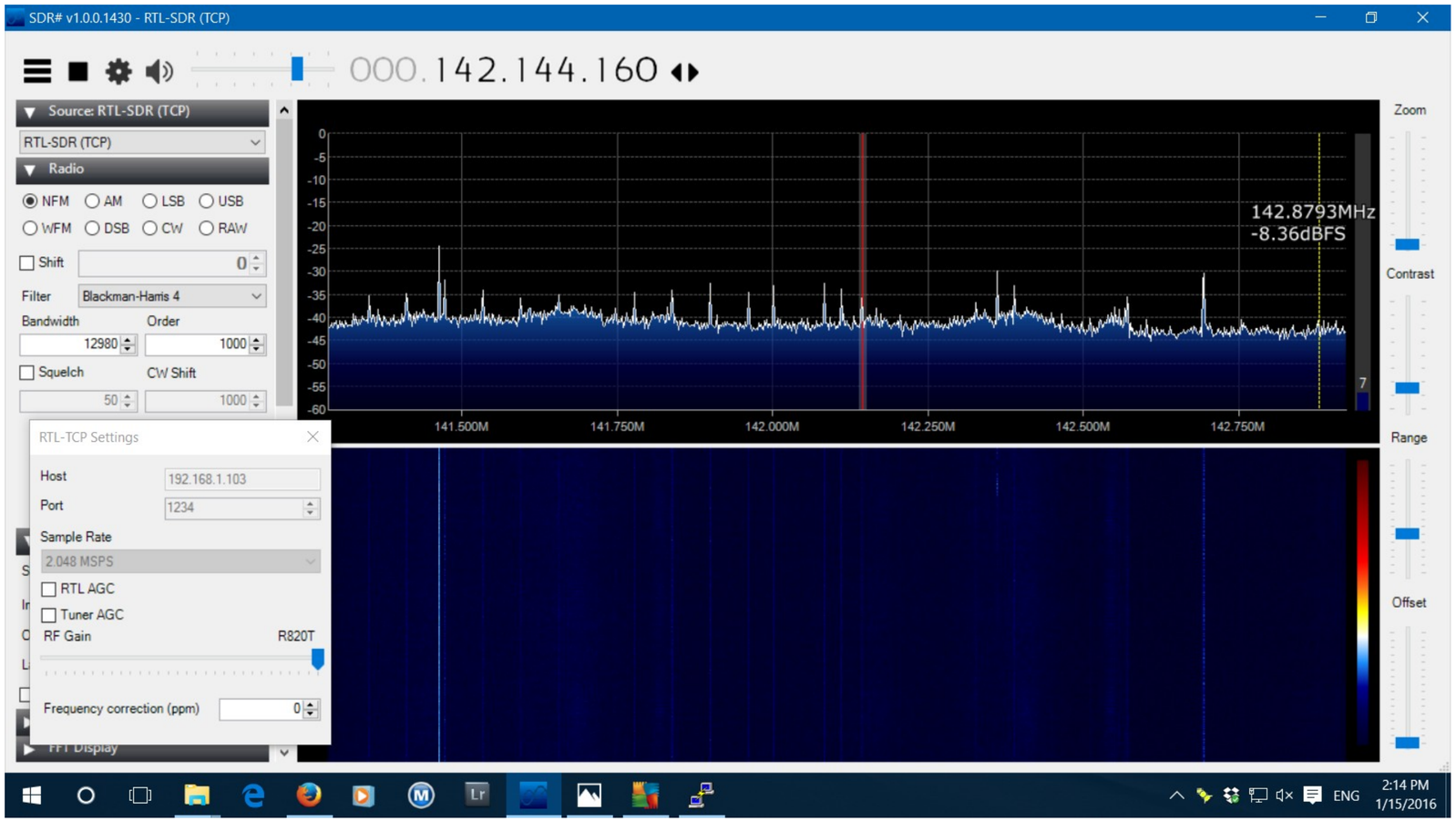



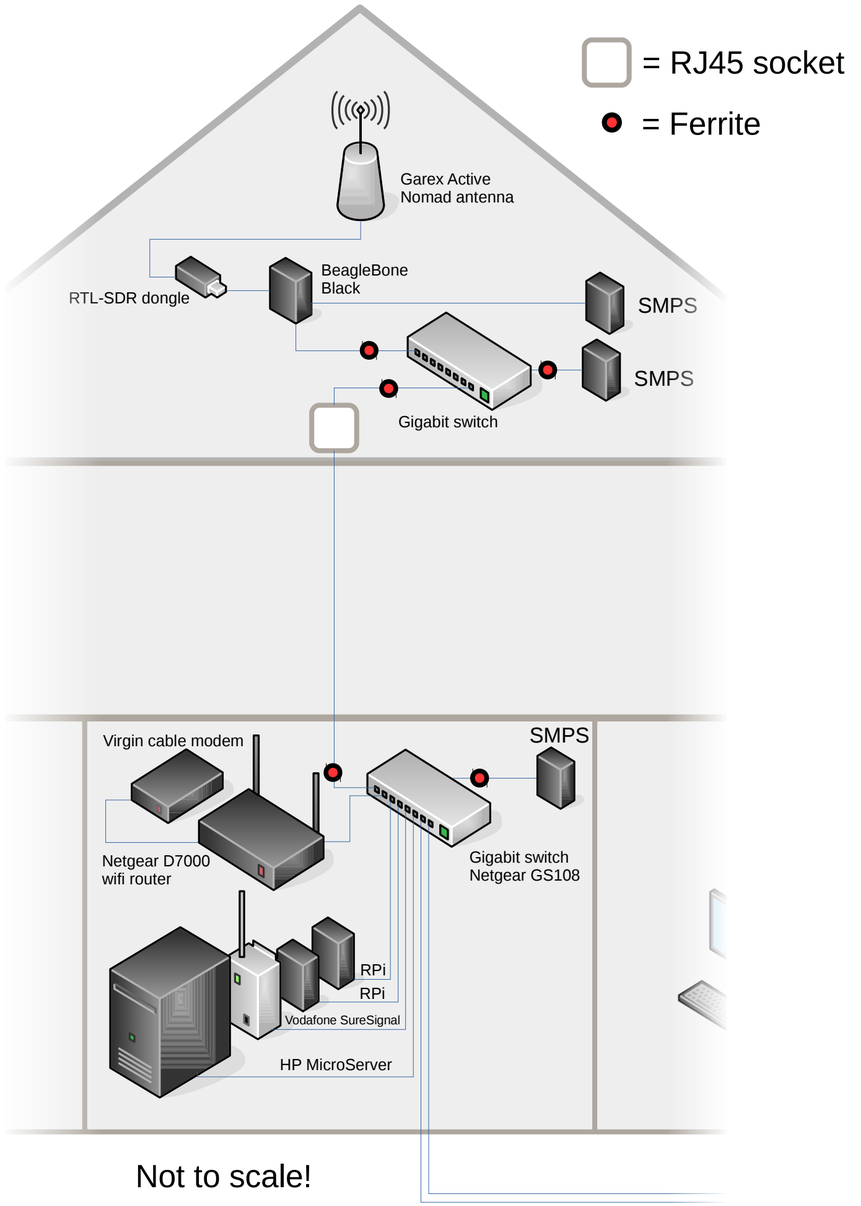
# 06 – Replaced TPLink switch in loft, this now with ferrites on all cables



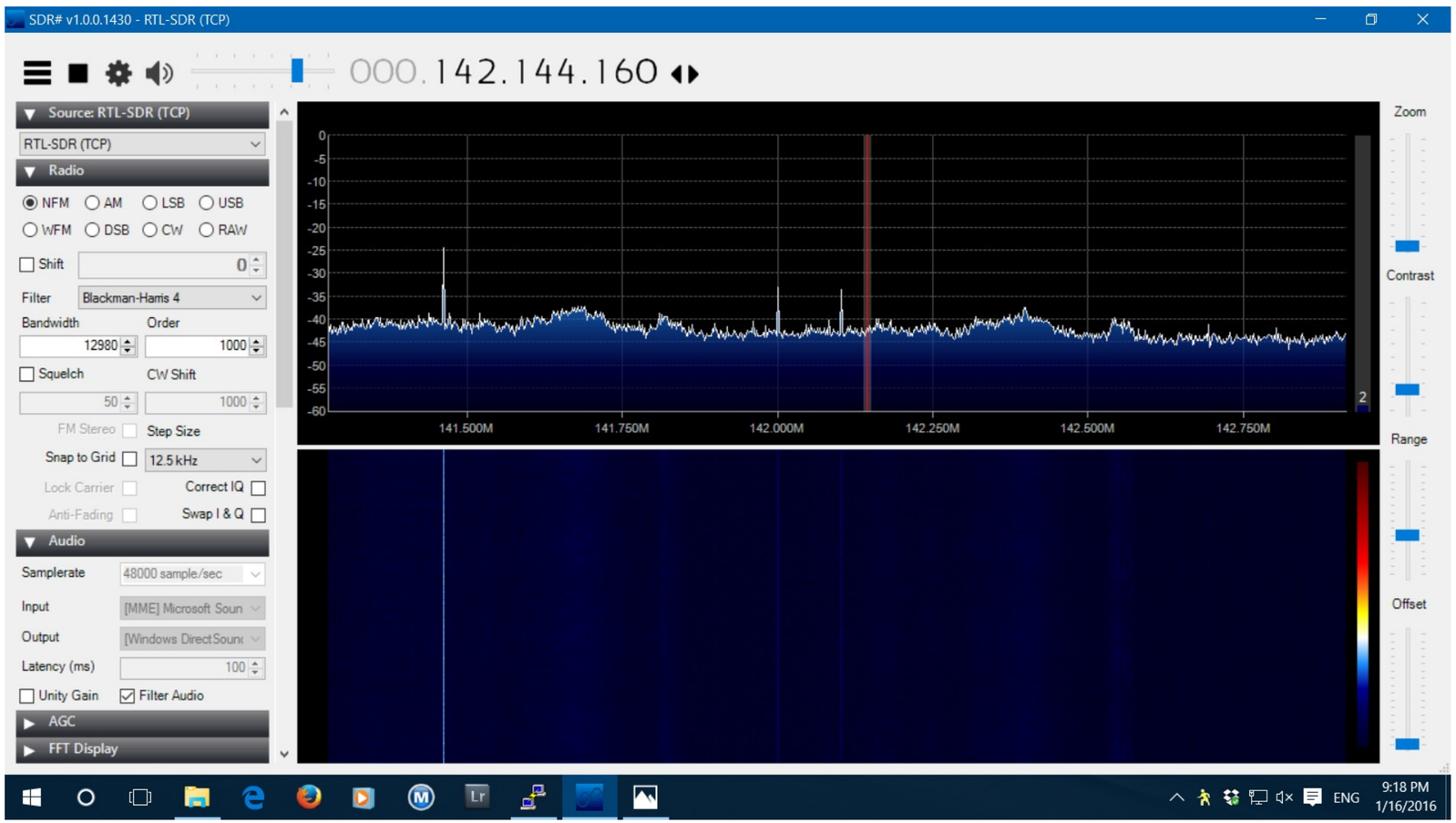



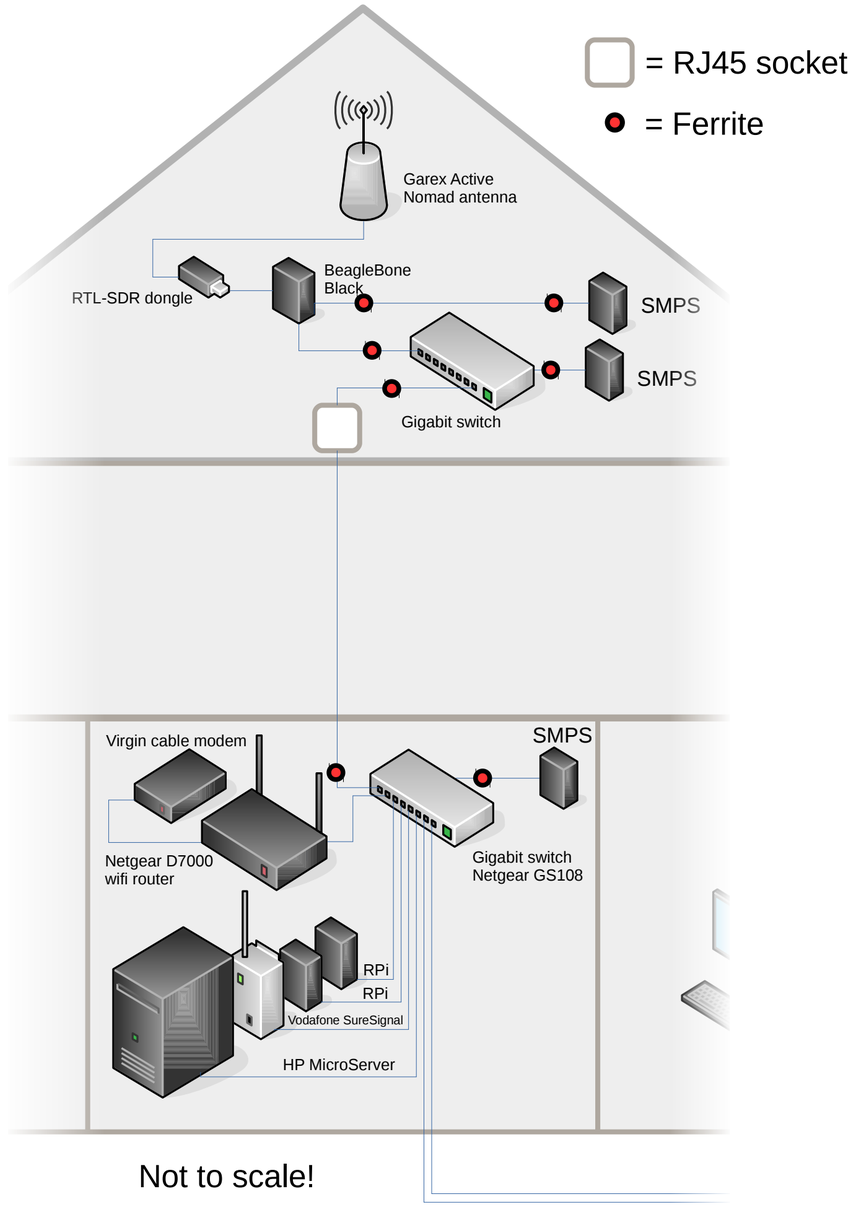
# 07 – Swapped TPLink switch for a Netgear switch



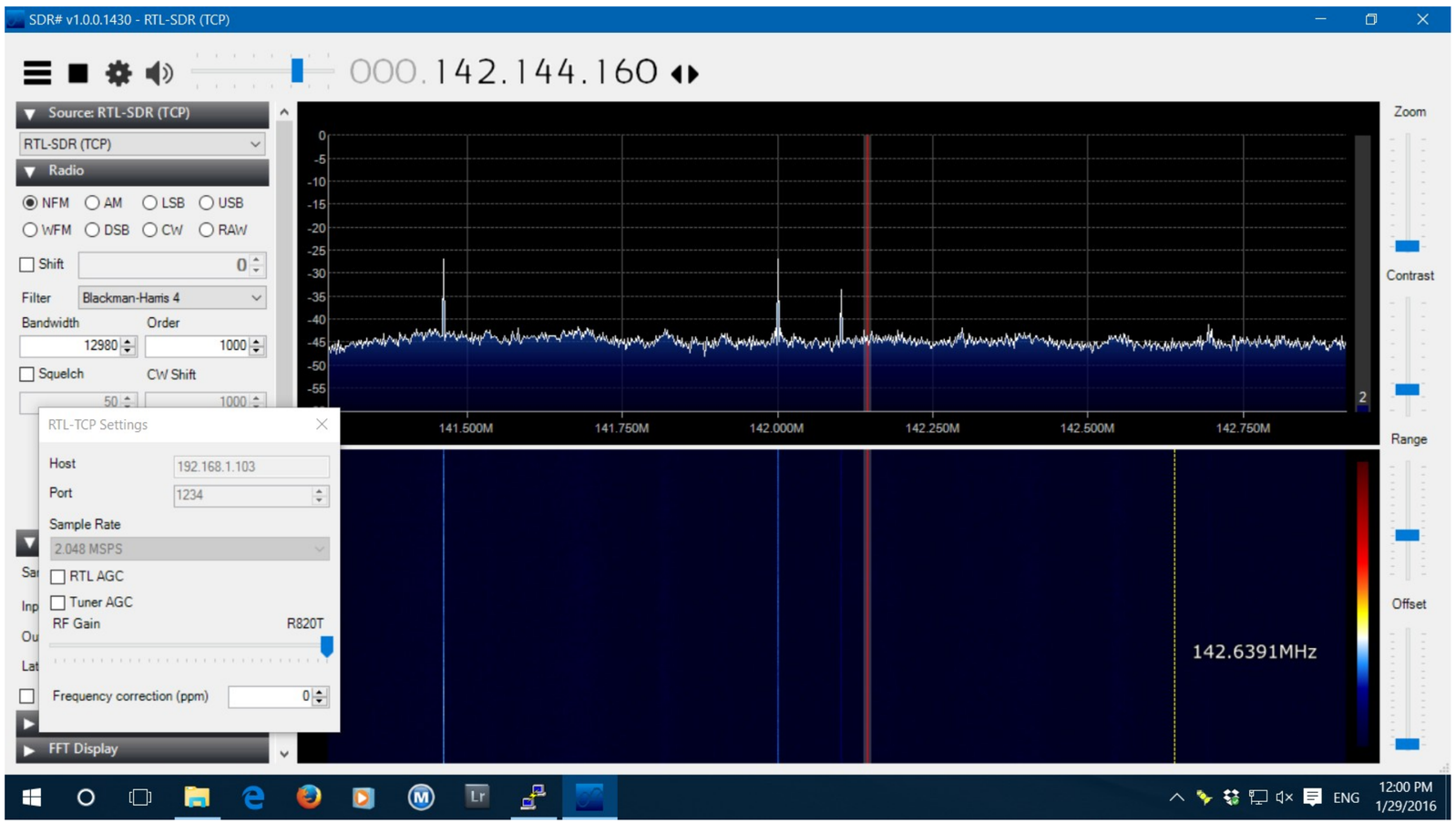



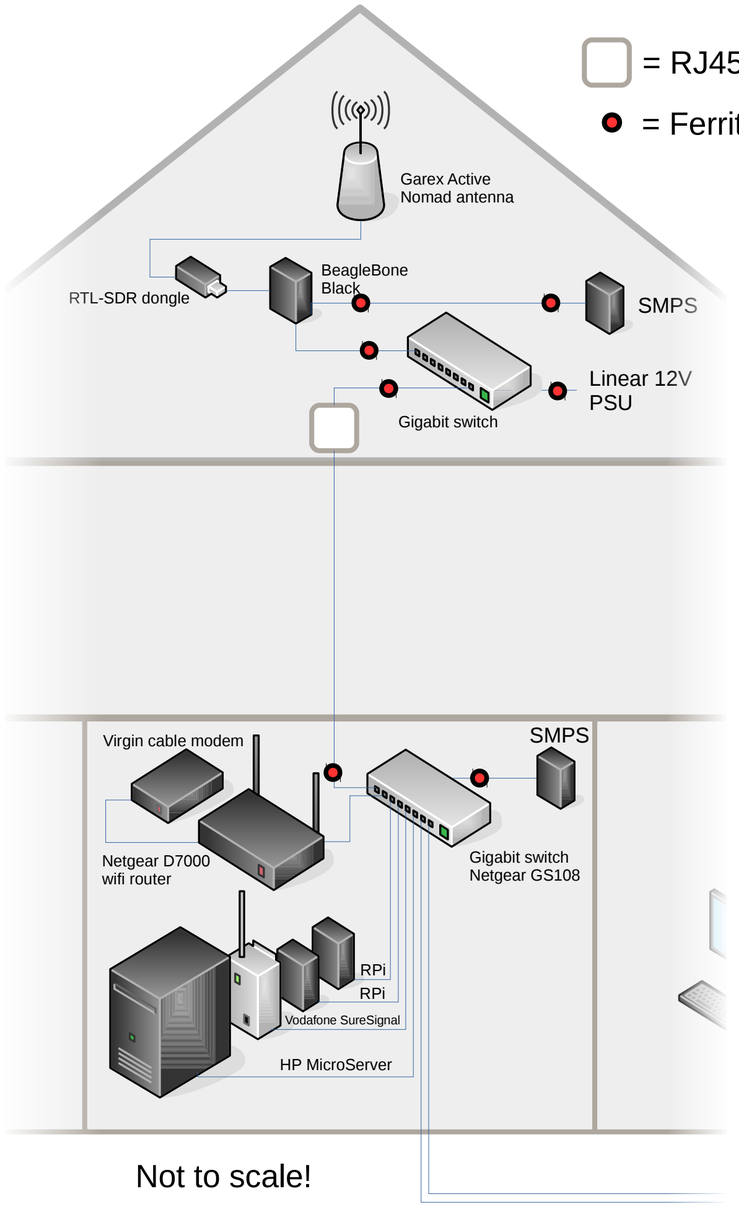
# 08 – Added some cheap ferrite beads on PSUs in loft



# 09 – Replaced Loft Switch Switch Mode PSU with a Linear 12V PSU




Not to scale!

# Concluding thoughts

- This example begins with the extreme case of a network switch in close proximity to an indoor active antenna but, with selective application of ferrites, RFI is reduced to workable levels:
  - Noise floor reduced by ~20 dB
  - Ethernet noise spikes reduced by >30 dB
  - Powering the switch from a linear power supply gives further improvement
  - See http://alloutput.com/amateur-radio/ethernet-rfi-noise-reduction/ for more detail