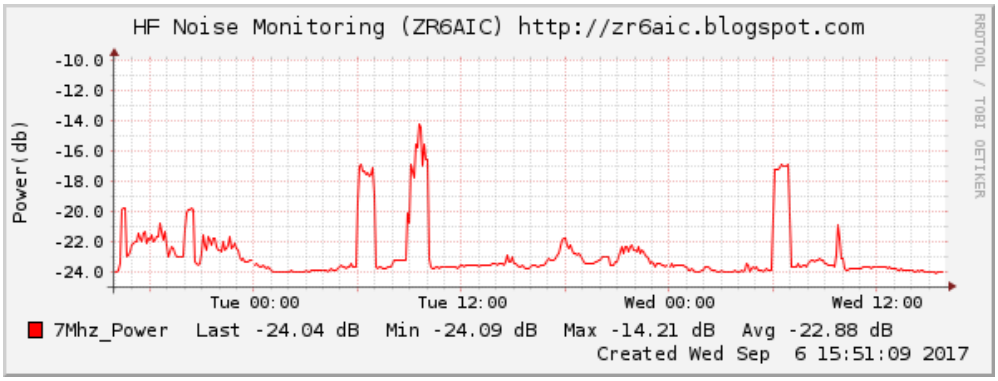
Why Radio Amateurs should be concerned about the rising RF noise floor?



RF Noise an exponentially growing problem

Worldwide the RF spectrum use is continuing to grow as technology progressively makes more use of wireless connectivity. The spectrum has become steadily more polluted as the number of non-compliant and faulty pieces of electronic devices including substandard equipment has also risen over the years.

The reluctance and short-sightedness of regulators in various countries to act against manufacturers of non-compliant electronic devices and equipment, leaves the radio amateur fraternity with no other alternative but to get involved in collecting the necessary RF noise floor data and to support initiatives for proper interference regulation and action against radio frequency pollution on a world-wide level.

On 15 June 2016, the FCC office of engineering and technology technical advisory council opened a noise floor technical inquiry in the form of ET docket no. 16-191 to seek answers to the following basic questions:

- Is there a noise problem?
- Where does the problem exist? Spectrally? Spatially? Temporally?
- Is there quantitative evidence of the overall increase in the total integrated noise floor across various segments of the radio frequency spectrum?
- How should a noise study be performed?

Unfortunately, most feedback was anecdotal and not accompanied with measured quantitative data but there was one clear outcome, a noise floor study is not only needed but long overdue.

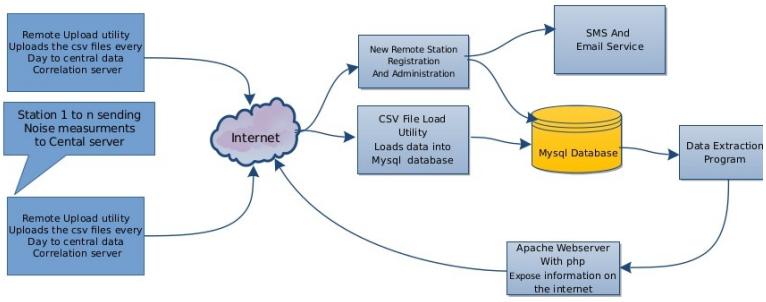
Ham Radio Science Citizen Investigation (HamSCI)

In the USA and spreading to Europe radio amateurs and scientists have joined forces in Ham Radio Science Citizen Investigation (HamSCI*), a collaboration between radio amateurs and scientists to advance scientific research and understanding through amateur radio activities. While the group is currently more focussed on radio propagation, ionospheric studies and space weather, the concept would work well to make meaning full contributions to study the increases in the RF noise floor. The HamSCI is the model the SARL is pursuing.

Not complex

It may sound complex but with the right software, a raspberry pi and a HF dongle it is very easy to create monitoring stations in many parts of the world, create a universal server where the data is upload and develop algorithms to review the data after a period of time.

Progress to date

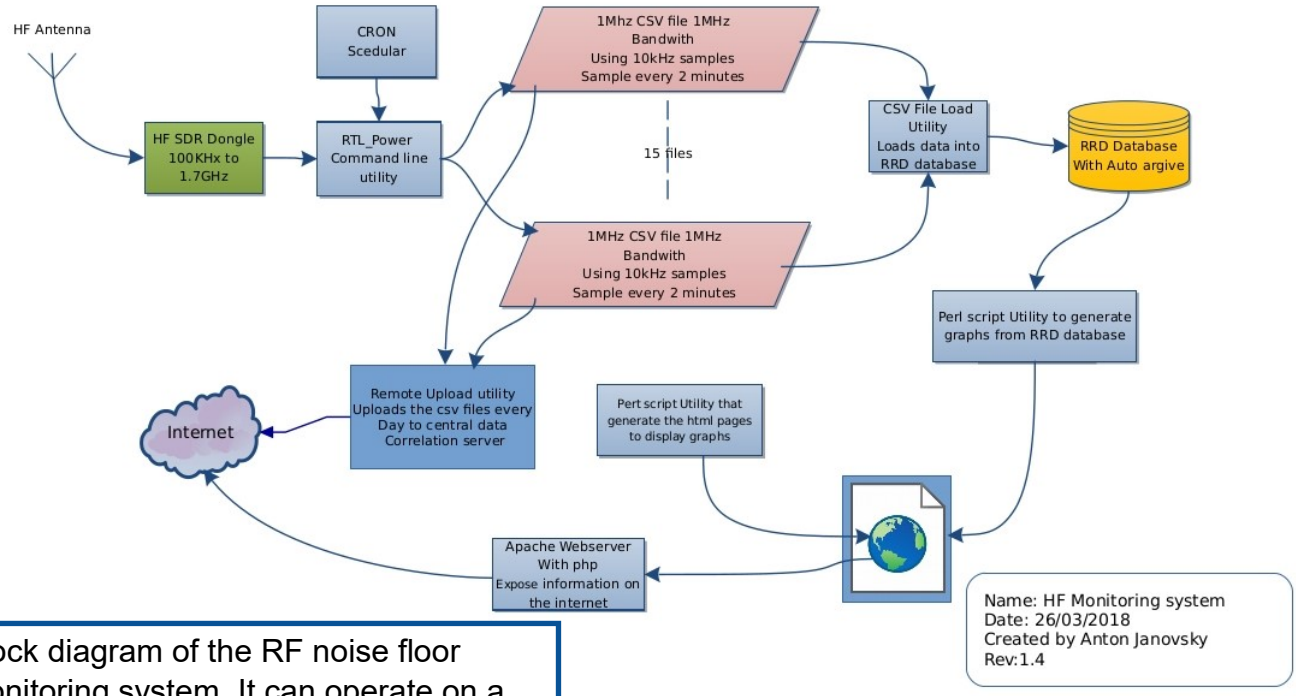


A master RF Noise Correlation Server system is operational where stations can register and have the data collected automatically uploaded. The system is currently in a beta testing stage. To view the data already uploaded go to http://rfnoise.amsatsa.org.za

The architect of the SARL Noise Floor monitoring system is Anton Janovsky ZR6AIC. The server has been made available by Leon Lessing ZS6LMG. AMSAT SA has provide the web interface. The SARL recognises their contributions.

Regular workshops are being conducted at the National Amateur Radio Centre in Gauteng as well as Skype Sessions for radio amateurs not able to attend the physical workshop.

To join the HamSCI and the SARL Monitoring project send an email to sarlregwg@sarl.org.za



Block diagram of the RF noise floor monitoring system. It can operate on a laptop/PC or a Raspberry Pi