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RFI environment in the ASU Lab

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The RFI in the lab was measured using the Phoenix cubesat antenna. The antenna is optimized for UHF (~400 MHz) but the S11 over the frequency range of interest (40 -200 MHz) was < -5dB. The output of the antenna was connected to a Spectrum analyser via a Low noise amplifier (NF =3dB, gain = 30dB). The spectra was saved after 10 trace averaging. The traces are shown below:

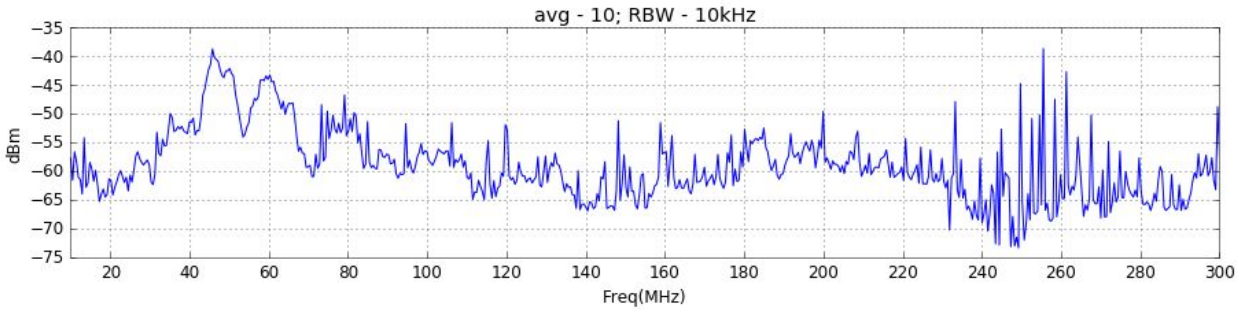

Figure1: Antenna power Vs freq from 10 MHz to 300 MHz. The BW resolution was set to 10 kHz.

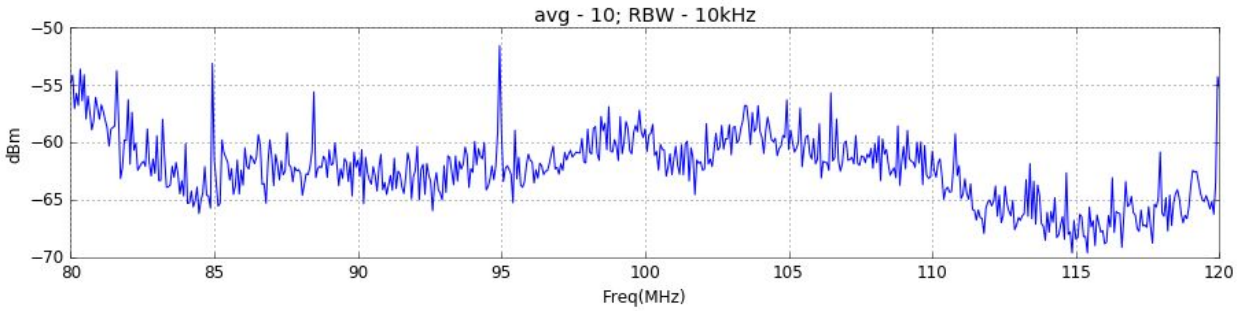

Figure2: Antenna power Vs frequency zoomed into the FM band from 80 MHz to 120 MHz. The BW resolution was set to 10 kHz. Hence more sampling points.

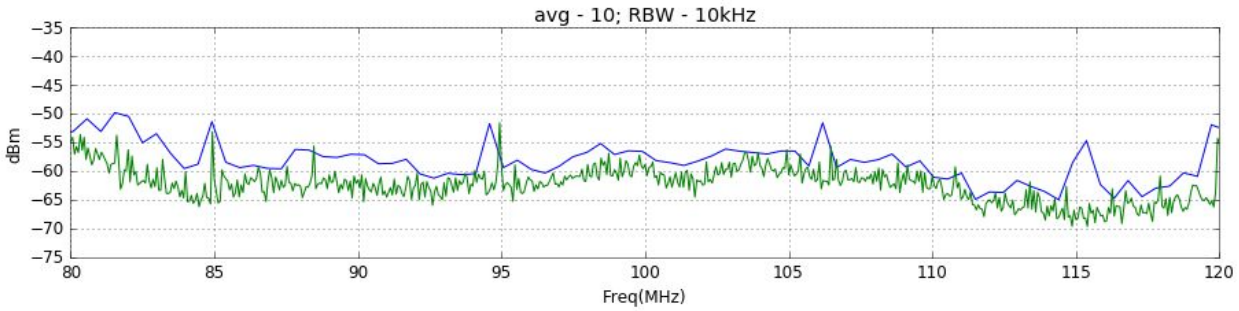

Figure3: Antenna power Vs frequency overplotted for the above two measurements.

Remarks:

- The spectra looks clean overall with a few persistent spikes at ~85 MHz, 95 MHz and 120 MHz.
- The ripple between 40 to 60 MHz may be attributed to the antenna characteristics.