

Applicant's Name: Drax R Felton File No.: 0393-EX-PL-2016

Description of Experiment

Intent:

Experimental study of physically small to wavelength, fractal mathematically designed, horizontal, low-to-ground antennas at used long wavelengths offer radiation efficiency or bandwidth advantages similar to fractal designs at microwave lengths when compared to a traditional top and bottom loaded vertical ground plane monopole antenna.

Method:

Will use a software defined radio to generate a narrowband, longwave and medium wavelength radio frequency signal to be fed one minute alternately into a known to be inefficient short vertical monopole antenna and a then a horizontally mounted low to ground vs. wavelength (0 to 14 meters above ground) fractal pattern of copper wire which is physically short compared to wavelength. Frequency bands to be used are 2,200 meters and 630 meters where shortened antennas are known to be highly inefficient.

A computerized receiver radios will monitor received signal strengths and report back for data collection via the Internet. A field strength meter will be used to monitor near-field RF energy and compliance with the 1-watt ERP requested in this application.

Advancement to Radio Art:

Fractal antennas are common in microwave radio design, but little interest has been given to studying these antennas at LF and MF radio frequencies. Study will attempt to determine if there is any practical merit to a fractal design and energy savings at these frequencies.