

# Hum Sniffer

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**Abstract:** Our project is tailored to a fairly specific application: the deployment of large-scale antennas to track VLF transmissions from various high-power transmission sites across the USA and abroad. The immediate goal of this project is to track the impact of lightning-induced electron precipitation on the Earth-ionosphere waveguide and the transmission of VLF signals dependent on this waveguide means of propagation.

When placing an antenna of this sort it is of paramount importance to minimize the amount of interference received in order to maximize the usefulness of the acquired data. The Hum Sniffer utilizes a small scale model of a larger receiver system which we have custom designed to be portable enough to identify ideal deployment sites and also to deliver several different types of real-time data depending on the technology available at a site. Our antenna system can be used in conjunction with a laptop computer using code we have written to work in Matlab which can display received information in several different ways depending on the application. The system can also be used with existing Android software to plot real-time spectrogram data of the interference present at a potential deployment site.