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Investigation of 60Hz electromagnetic environmental noise JOHN HOWELL, JOHN GAFFNEY, SANICHIRO YOSHIDA, Southeastern Louisiana University — In addition to many other sources, alternating current causes electromagnetic noise. This noise is generated at close to 60Hz in the United States. Many different factors can influence the specifications of the noise, including mechanical load on the power company's generator. By using a simple antenna consisting of a capacitor and iron-core inductor along with gathering and processing programs (Labview and Matlab), we have characterized this 60Hz noise. Peak shifts as well as broadening and narrowing phenomena were common in measurements. By constructing a program script to step through the measured data in a set increment, we were able to determine the frequency and amplitude fluctuations of particular samples. Different times of day show different fluctuations as conditions such as seismic disturbance change and possibly electric load varies.

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