ABSTRACT

TITLE:	Audio Speaker Utilizing the Controlled Modulation of an Electrical Discharge
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ABSTRACT: A method for producing high fidelity audio was explored utilizing a massless speaker. The design explored the best course of action regarding discharge type, modulation scheme and transformer construction. Specifically, a point to point discharge between two fixed electrodes was utilized. An audio signal modulated a fixed frequency, transformer driving, square wave using pulse width modulation. This signal was adequately amplified using a configuration of MOSFET(s). The duly amplified signal powered the primary winding of a high power, high turn ratio transformer. The audio producing electrical arc was maintained across the secondary winding of the transformer. The audio output was tested using a high quality microphone and a fixed frequency, sine wave input. An oscilloscope was used to perform an immediate Fourier transform. By analyzing the output in the frequency domain a quantitative measurement of total harmonic distortion plus noise was made. The audio was tested at various frequencies and averaged to give a total THD+N measurement.