

Abstract:

Introduction: I wanted to expand off of the project that I did last year. I was able to send electricity wirelessly using magnetic coupling. This year I wanted to know if electricity could be sent over a distance. My hypothesis, Wireless Electricity can be sent over a distance of at least 1.5 meters.

Problem Statement: How Far Can Wireless Electricity be Sent?

Procedure: I used different variables and tested them to see if they affected the distance of Electricity. The variables that I used are listed below and how many times I tested each of them. I also included six more trials off of what I had learned from the other variables.

Power source:

Output Voltage
Function Generator

Primary Coil:

Conductor
Shape
Number of turns
Number of primary coils
Coil Diameter
Gauge
Length
Solid Coil
Solid Core
Capacitor

Secondary Coil:

Conductor
Shape
Number of turns
Number of primary coils
Coil Diameter
Gauge
Length
Solid Coil
Solid Core
Capacitor
LED

Results: The four trials with the farthest ranges were number of coils with a distance of thirty centimeters with two primary and secondary coils. The next was coil diameter with a distance of thirty-two centimeters with twenty-nine centimeters of diameter for both coils. The next two trials were in the extra trials and the first had a distance of twenty-eight centimeters with one hundred and fifty turns and twenty-nine diameter for the primary and the same diameter for the secondary. The second had a distance of thirty-two with two secondary coils.

Conclusion: No I was not successful in sending electricity over a distance of 1.5 meters. My hypothesis was rejected however I was able to send it a maximum distance of thirty-two centimeters.