# CALIFORNIA STATE SCIENCE FAIR
## 2009 PROJECT SUMMARY

**Name(s)**

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**Project Number**

**S0907**

**Project Title**

# Relationship between Different Types of Antennae and Their Respective Signal Strengths in a Predetermined Area

**Abstract**

**Objectives/Goals**

The goal of this project was to find the relationships between different types of antennae and the position the receiver was at. Each antenna's optimal are of usage would be found.

**Methods/Materials**

To test this experiment a base laptop stayed stationary and hooked up to one of three test antennae (biquad, parabolic, dipolar). The other laptop was the test laptop with a preconfigured wifi antenna where data points were gathered in a predetermined area. By using programs such as MATLAB, netstumbler, and google earth, the data and results could be expressed in a variety of ways.

**Results**

The dipole antenna had optimal signal in a 360 degree angle, while the distance reached was relatively short. The biquad antenna's signal had a much longer reach, with an approximately 180 degree angle. The parabolic antenna's signal had 10-20 degree angle, and reached about 15% farther than the biquad (with comparable signal strength).

**Conclusions/Discussion**

At the end of the experiment the hypothesis was mostly supported. The general trends stayed constant with theory but the biquad antenna showed vastly different resutls than expected. Besides covering the same raidal distance as hypothesiszed, the linear distance at which the biquad traveled was beyond expected results. Besides this inconsitency, the data supported the hypothesis.

**Summary Statement**

Various antennae were tested to find their optimal usage scenario.

**Help Received**