CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY

Name(s)
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Project Number
J0706

Project Title
Propagation Station

Abstract

Objectives/Goals
To test and observe the behavior of radio waves (propagation) when passed through wire mesh obstacles of varying weaves and distances from the transmitting station.

Methods/Materials
2 Motorola Talkabout walkie-talkies, sheets galvanized steel hardware cloth, a one-tone alarm clock ring (for the transmission), two plastic stools (for transmitting and receiving stations), and a Digital-Display Sound-Level Meter.

Results
Surprisingly, the 1/2" weave was the optimal obstacle, even though it wasn't the loosest weave. I believe this has to do with the property of the diffraction of radio waves.

Conclusions/Discussion
The findings in my project could be expanded upon for scouting optimal radio transmission locations, improving the clarity of transmissions, and creating radio-wave impervious materials.

Summary Statement
"Propagation Station" is a project studying the behavior of radio waves and how it can be affected when the radio transmission is sent through hardware cloth mesh of varying weaves and distances from the transmitting station.

Help Received
Mother edited and proofread experimental write-up drafts; Father and younger brother helped perform experiment; Dr. Bob York of UCSBgave advice on the subject matter and answered various questions.