



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Edward D. De Leon	Project Number J0908
Project Title Reducing Radiation	
Objectives/Goals Radiation. We are exposed to it every day from cell phones and electronic devices. This is why the objective of my project is to find out if it is possible to reduce our exposure to electromagnetic radiation (EMR) produced by wireless devices by moving the device further away, or by changing the connection type from wireless to wired? I thought that, yes, it would be reduced if the device is moved further away.	
Abstract Methods/Materials To test my hypothesis, I made an experiment using a radio frequency (RF) meter and devices such as a Roku, an iPhone's wireless hotspot, and a laptop. Two tests were done to measure EMR # (A) a Distance Test at 0m, 0.5m, and 1m, and (B) a Connection Test (wireless and wired). With all other electromagnetic radiation emitting devices switched off, the EMF meter would record the amount of radiation and it would be written down. This test was to be repeated six times; the connection test would soon follow. A laptop would be tested at 1 meter away while connected wirelessly and later, wired via an Ethernet cable, and the Roku would be tested the same way as well.	
Results Analysis of the power density (amount of radiation a person would receive, measured in mW/cm ²) shows that both the wired Roku and laptop had less radiation further away at 0.5 and 1 meter compared to the wireless counterparts (Roku difference is 3.9; laptop 15.17); both the iPhone hotspot and Roku had less radiation while being gradually moved away (iPhone 6 difference is 675.86; Roku 539.5).	
Conclusions/Discussion In conclusion, my hypothesis was correct # that exposure to electromagnetic radiation can be reduced by moving EMR-emitting devices at least 0.5 meter further away and if wired connection is used instead of wireless.	
Summary Statement Find out if exposure to electromagnetic radiation produced by wireless devices be reduced by moving devices further away, or by changing connection type from wireless to wired.	
Help Received Teacher and parents reviewed written project. Mom helped held RF meter while I recorded data.	