



CALIFORNIA STATE SCIENCE FAIR

2010 PROJECT SUMMARY

Name(s) Brandon W. Ferguson	Project Number S0207
Project Title The Fighter with the Least Reflectivity	
Objectives/Goals It is believed that fighter shape reduces its appearance to radar. An F-22 Raptor will be the least detectable because of all of its sharp edges.	Abstract A detailed abstract describing the project's goal of reducing radar reflectivity through fighter jet shapes, specifically mentioning the F-22 Raptor as the least detectable due to its sharp edges.
Methods/Materials # 32"x25"x22# cardboard box # 7# to 6# diameter reducer # 6# x 6# diameter connector # 6# to 4# diameter reducer # 6# x 4# diameter connector # 4# to 3# diameter reducer # 400,000 candlepower spotlight # 12 V Solar Panel 18# x 20# # Volt meter # 1/72 scale fighter replicas of: o F-22 Raptor o F-14 Tomcat o F-15 Eagle # Black and White Poster boards.	
Large testbox is used to test aircraft at 3 different views and gather results. A specially situated solar panel receives incoming light and detects results in volts.	
Results F-22 wasn't any less detectable than the other fighters. Fighters with camo coating was 61% to 73% less detectable than the fighters with white coating. The 3-D shape was found on average to deflect about half of the light that hits it. The F-14 with retracted wings was the least detectable fighter.	
Conclusions/Discussion The Hypothesis stating that the F-22 would be the least detectable because of its shape was not supported by the data. F-14 Tomcat proved most efficient at scattering light, most likely because of its rough and uneven surfaces. The data had shown that the front views had been the least detectable because more of the light passes by the plane at this view. Standard deviation was consistent usually sticking at around 3%. The outliers never ranged over 12% deviation.	
Summary Statement The project, using the visual spectrum, measures the idea of stealth for three jet fighters.	
Help Received My dad had helped me with the necessary trigonometry to put my project	