CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)

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Project Number

31652

Project Title

Blinded by the Light

Abstract

Objectives/Goals

This experiment examined the efficiency of two headlights (High Intensity Discharge and Halogen) commonly used by cars around the world. By discovering which headlight has the better range, length, and brightness, it was determined which one will be safe on the road at night and that will help economically in the long run. Commencing with several tests to determine the effectiveness of both headlights, the first tested the range of the headlights by backing up both cars side-by-side into an empty driveway and turning the lights on. Then, one measured the base width of the lights and the furthest visible light span. For the length, the cars were parked in an empty street, and then the cars were turned on. Using three subjects dressed in all black, the subjects would walk forward until the subject was no longer visible by the driver. For every ten yards, there would be a mark on the ground using green chalk. This is significant because people will want to know which headlight should be fitted in their car that will serve them the best, without having to change the light frequently. The conclusion was that the High Intensity Discharge (HID) headlights would serve best without being too costly, in addition to providing safer driving at night with a more visible surrounding area.

Methods/Materials

Two cars, one with High - Intensity Discharge (HID) lights and one with Halogen; The same lens covers for HID lights as well as the Halogen headlights; Chalk of various colors; (1)Tape measure; (1)Measure wheel; (20)Cones; Test subjects in black attire; A notebook to record measurements; (1)Camera; 30 subjects.

Results

The results of the experiment conclude that the High-Intensity Discharge (HID) headlights out perform the Halogen headlights in distance and width. However, the subjects surmised that the glares caused by the HID headlights are greater than that of the Halogen system and thus more distracting. Overall, despite the glare impediment, the HID headlights prove to be an overall better buy.

Conclusions/Discussion

The results show that HID headlights are all around a better buy for the driver, however the glare caused by them negatively shines upon the oncoming driver.

Summary Statement

The central focus of our project is to determine whether the modern High Intensity Discharge (HID) headlights better suit the driver than the standard Halogen headlights in distance, width, and glare for the oncoming driver.

Help Received

Preliminary