

Generally, the essay is well organized, well presented and clearly explained making it easy to read and straightforward, even though the photometric parameters are somewhat intertwined. These parameters are precisely defined at the beginning of the essay.

In the introduction, it would be good to relate the cited laws to the research question more closely. Throughout the essay, the student shows good theoretical knowledge and applies it efficiently and convincingly. The method is sound but the use of four or five bulbs rather than two would result in a more realistic geometry, extend the illumination field, widen the interaction between the light sources and achieve better average results. The student relates better visibility to higher illuminance in the roads; it would be good to include data connecting these two variables.

The analysis, starting with the pre-testing, is well built up. Some inconsistencies or error are introduced in the values of some uncertainties. Proper language is used as well as efficient annotated diagrams and graphs; however, there is some confusion in the interpretation of a graph due to a misuse of the terms “inverse” and “exponential” relationships. A three-dimensional bar chart displaying illuminance values would have been helpful. Standards are not followed in the writing of numerical values with their units and uncertainties.

The bibliography should appear before the appendix which is, generally, used appropriately. Good citations and bibliography are presented. In the experimental procedure and the collection of data, the student demonstrates great care, gives attention to detail and shows imagination. The achievement level of this essay is excellent in spite of some weaknesses.