Abstract Submitted
for the OSS11 Meeting of
The American Physical Society

Development of LED Lamps for Airfield Applications EDWARD CAROME, RICHARD HANSLER, VILNIS KUBULINS, Lighting Innovations Institute, John Carroll University — Extensive work is being done to develop light emitting diode (LED) lamps to replace the incandescent lamps in the many different lights used on airfield runways and taxiways. The goal is to reduce both the expended energy and the lifetime cost of such lights. Consider, for example, the blue lights used along taxiways. Traditionally these consisted of a 40 watt incandescent lamp in a blue light transmitting lens. These are being replaced with lamps with a single 1 to 3 watt blue LED. The design of one such lamp will be discussed, as will that of several types of runway lights. A major problem has developed in this switch from incandescent to LED lamps, however. The previously wasted IR from the incandescents has recently come into use by so-called Enhanced Flight Vision Systems (EFVS). These systems provide pilots images of the IR from runway lights and allow them to land under highly adverse weather conditions. Since the new LED lamps emit very little IR, they cannot be imaged by these EFVS. Solutions of this problem, such as adding infrared LEDs to the new lamps, presently are being investigated and will be discussed.

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Date submitted: 24 Feb 2011 Electronic form version 1.4