

Street lighting based on LED technology

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Abstract

In this research, a numerical analysis and experimental measurements of temperature stabilization of high power LED is shown, by employing a heat sink passive aluminum, designed to be used in a compact lamp configuration. The research proves that our system maintains the LED chip temperature below $70^{\circ}C$, allowing optimal long-term performance of the device. The simulation to treat heat transfer in the heat sink has been made by implementing software that works with finite element analysis. Likewise, experimental simulations were performed on a low-cost prototype ready to install on street lighting. Experimental measurements in different configurations show good agreement with numerical calculations.

Key words: LED lighting; heat sink; street lighting.
