

Accepted Manuscript

Title: The design of LED rectangular uniform illumination lens system

Authors: Yong Shi, Baicheng Li, Mantong Zhao, Yao Zhou, Dawei Zhang



PII: S0030-4026(17)30452-7
DOI: <http://dx.doi.org/doi:10.1016/j.ijleo.2017.04.049>
Reference: IJLEO 59091

To appear in:

Received date: 15-6-2016
Revised date: 30-3-2017
Accepted date: 14-4-2017

Please cite this article as: Yong Shi, Baicheng Li, Mantong Zhao, Yao Zhou, Dawei Zhang, The design of LED rectangular uniform illumination lens system, *Optik - International Journal for Light and Electron Optics* <http://dx.doi.org/10.1016/j.ijleo.2017.04.049>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

The design of LED rectangular uniform illumination lens system

Yong Shi, Baicheng Li, Mantong Zhao, Yao Zhou, Dawei Zhang

University of Shanghai for Science and Technology, Ministry of Education Optical Instrument and Systems Engineering Center, and Shanghai Key Laboratory of Modern Optical System, No. 516 Jungong Road, Shanghai 200093, China

Abstract Freeform lenses are playing a more and more important role in LED secondary optics design. In this paper, based on the lighting-energy conservation law, edge-ray principle and Snell's law, we present a freeform lens optical system design method for LED lighting. This system can achieve rectangular lighting area, and it is easier to precisely control the angle of light emitting and processing, with the advantages of uniform illumination. The software Matlab and Rhino were used to get the model of lens, and the PMMA was used as the material to design lens model. Finally, the numerical simulation results showed that the spot shape was close to the expected results.

Keyword freeform lens; light emitting diode (LED); rectangular uniform illumination

1. Introduction

Theoretically, LED has many advantages, such as long lifetime, environmental protection, high reliability and low-power consumption. With the luminous flux of a single light-emitting diode increasing, LED lighting applications become more widely. However, most LED chips are approximately Lambertian light source, which

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات