应用光学 2009, 30(3) 460-464 DOI: ISSN: 1002-2082 CN: 61-1171/O4

论文

基于LabVIEW的LED三维特性检测的研制

王巧彬;任豪;罗宇强;范力维

广东省现代控制与光机电技术公共实验室广州市光机电技术研究院，广东广州510663

摘要：

为了解决传统配光曲线只能反映LED发光二维特性、立体感太差及不便于人为观察比较的难题，提出一种新的基于高级图像编程语言(LabVIEW)的LED三维特性(光强空间分布)快速检测方法。在传统光强空间分布检测方法的基础上，采用多路光度探测单元同步测试，可在0.2s内一次性由31个探测单元同步测得LED光源的二维光强空间分布（配光曲线）。通过增加旋转机构转动待测LED样品，依次测得i(i=180°/α)条配光曲线。最后由自研软件将i条配光曲线进行数据汇总处理，便可得到LED光源的光强空间分布的三维立体图。该检测方法具有速度快、精度高、信息量大等优点，并且具有实时性和直观性。

关键词： 三维特性;空间分布;LabVIEW;LED

Three dimension characteristic measurement of LED based on LabVIEW

WANG Qiao-bin;REN Hao;LUO Yu-qiang;FAN Li-wei

Guangdong Public Laboratory of Modern Control & Optical,Mechanics and Electricity Technology，Guangzhou Rresearch Institute of O-M-E Technology，Guangzhou 510663,China

Abstract:

A new testing method for LED's spatial intensity distribution based on the high-level image programme language (LabVIEW) was introduced to overcome the shortcomings of the conventional method, whose light distribution curve can only reflect the two-dimensional light-emitting characteristics of LED and the third dimension is difficult to be observed and compared by human eyes. It incorporated synchronized multi path photometric detection in the traditional method, with 31 detection units to measure two-dimensional spatial intensity distribution (lighting distribution curve) of the LED source synchronously within 0.2s. By rotating LED test sample, i(i=180°/α) items of the lighting distribution curve were measured one by one. All the lighting distribution curves were collected and processed by the custom software, and three-dimensional solid map of the LED's spatial intensity distribution was obtained. The method has the real time and high throughput features, and it is fast, accurate and straightforward.

Keywords: three dimension characteristic; space distribution; LabVIEW; LED

收稿日期 修回日期 网络版发布日期

DOI:

基金项目:

通讯作者: 王巧彬(1983-)，男，广东省揭阳市人，光电子助理工程师，学士，在应用光学、光电检测、光机电一体化等领域从事科研开发.

作者简介:

参考文献：

［1］周小丽，刘木清，钱勇，等.LED光通量测试系统的研究［J］.光电子·激光， 2008，19(6):728-730.
ZHOU Xiao-li,LIU Mu-qing,QIAN yong, et al. Study on the LED's total flux measurement system ［J］.Journal of Optoelectronics·Laser, 2008,19(6):728-730.(in Chinese with an English abstract)
［2］潘建根.LED光色电综合性能分析测试原理与仪器［J］.液晶与显示，2003.18(2):138-140.
PAN Jian-gen.LED photometric chromatric electric characteristics analysis system［J］.Chinese Journal of Liquid Crystals and Displays Apr.,2003,18(2):138-140. (in Chinese with an English abstract)
［3］梁凤薇,牟同升.LED光色度测试中存在的问题探讨［J］.光学仪器，2005，27(2)：3-7.
LIANG Feng-wei,MOU Tong-sheng.Discussion about problems in measuring photometric and colorimetric

parameters of LED［J］.Optical Instruments, 2005，27(2):3-7. (in Chinese with an English abstract)
［4］吕正，赵志丹，樊其明，等.从LED的配光曲线谈起［J］.中国照明电器，2004(10)：1-4.
Lü Zheng, ZHAO Zhi-dan, FAN Qi-ming, et al. To speak of LED's distribution curve flux［J］.China Light & Lighting, 2004(10):1-4. (in Chinese with an English abstract)

本刊中的类似文章

文章评论 (请注意:本站实行文责自负, 请不要发表与学术无关的内容!评论内容不代表本站观点.)

反馈人		邮箱地址	
反馈标题		验证码	1385