

Solid-state light source with adjustable spectrum

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ABSTRACT

In the illumination market, the latest tendency is with the solid-state light source substitution traditional light source. The color temperature and spectrum of traditional light source are invariable, however, the solid-state light source can modify the color temperature and spectrum by adjusting the brightness of each individual color LED. Therefore, the solid-state light source has more application area. This experiment chooses commercially available light-emitting diodes with various wavelengths to study the characterization of solid-state lighting. The location of LEDs is designed for uniform illumination by mixing the light of various color LEDs. The brightness can be adjusted by way of the simple electric circuit to modify the current. The color temperature of the light source is adjustable, by changing the brightness of each individual color LED, then the color temperature is adjusted. Furthermore, the characteristics of different light source with the same color temperature but different spectrum are discussed. Finally, discusses from the color rendering enables the illumination to have more saturated and a real color presents.

Keywords : solid-state light source、 color rendering、 color-rendering index

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