Eye Protection and Energy Saving Lamp

Mahendran, Sivatharshan

Various technologies are used for focusing light rays in table lamps. The conventional parabolic and cylindrical back reflectors are generally used in ordinary table lamps. Recently the energy efficient Light emitting diodes (LED) are dominating the lamp market due to low power consumption, cost and long life time. The instruments for controlling light scattering and increasing concentration have not been introduced yet in LED table lamps. This work concentrates on focusing the LED light and protects the eyes from illumination. A 1.5W LED module and a water filled transparent plastic sphere is used in this design. The design relies on simple total internal reflection phenomena. The incident rays with an incident angle which greater than that of the critical angle in the water-air interface will be reflected totally and internally. Hence the light well be focused on the table. Intensity measurements show an impressive three fold increment in the intensity when the front loaded water reflector is used. The water filled transparent sphere is acted as an imaginary convex lens at the bottom of the bulb. This convex lens will form a circle of light on the table. It is very much useful for energy saving process. The prototype design proved that a single 1.5W LED module is enough for reading books at night. And also prevents the eyes of the reader from illumination and it can provide a good reading experience.