

Modeling and Optical Characteristics of LED-Lighting Adopting Aspherical Lens

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Abstract : Recently, Light Emitting Diode(LED) has many advantages in comparison with conventional light sources; low power consumption, long lifetime, and less environmental pollution. Therefore, the use of LED is multiplying and increasing rapidly. In general, however, spherical lens is used in LED-lighting which cause many problems induces by optical aberration of spherical lens; low illumination, a yellow belt, unpleasant feeling in human eye. As a potential solution of this problem, aspherical lens can be employed. This study reports the improvement of LED-lighting performance by adopting aspherical lens. From the commercial program, LightToolsTM, the optical problem were ensured. And then, to improve this problem, optimum aspheric form was designed using Code VTM.

Key Words : light emitting diode(LED), Aspherical Lens, Aberration, Yellow Belt, Optical Design