Optical Design and Simulation for the Back Light Module and Back Light Source

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ABSTRACT

In this paper, we use the optics simulation program to discuss Liquid Crystal Display ’ s light guide plate. The back light module and back light source in the simulation. Including two important. 1. Backlight module of v-groove structure applied to the edge is the optics simulation and the best situation. 2. The micro structure array of LED devices is the optics simulation and the best situation 1. Backlight module of v-groove structure applied to the edge is the optics simulation and the best situation. In order to increase the divergent angle of light source and have more uniform light distribution, we present a method of v-groove structure applied to the edge of light guide plate to improve both properties of light source. The simulation of this work is performed with two variables. One is the angle of the V-groove, which is varied form 70 ° to 120 ° with 10 ° interval .The other is the hypotenuse-flat ration, which is ranged form 1:0 to 1:5. After the simulation results are analysed, we can obtain some useful conclusions which would give the optimized condition of the V-grooves structures and the best situation to achieve the utilization of light source. 2. The microstructure array of LED devices is the optics simulation and the best situation. LED have very much an advantage. In this paper, We have used the trace-pro program to simulate the light emission scattering of near ultraviolet (UV) InGaN/GaN light-emitting diodes (LEDs) structure have grown by patterned sapphire substrate (PSS) which is formed hole by hole. The simulation of this work is performed with two variables. One is the angle of the cone, which is varied form 60o to 90o with 15o interval .The other is the depth of the cone, which is varied form 0.5 μ m to 2 μ m. The simulation is result to show. The microstructure array by patterned sapphire substrate (PSS). It was found that enhancement optical properties could be attributed to improved form hole by hole material .

Keywords : optics simulation ; V-grooves ; hypotenuse-flat ratio ; microstructure ; patterned sapphire substrate

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