反射式扭轉型線狀液晶顯示器特性研究

研究生：曾德源　　指導教授：王淑霞 老師

國立交通大學光電工程研究所

摘　　要

液晶盒參數對於液晶顯示器的光學特性有很大的影響，例如亮度、對比度及響應時間等。目前已有文獻提出一些量測反射式扭轉型線狀液晶盒厚度及扭轉角的方法。在本篇論文中，我們同時提出了幾種簡單而精確的量測方法，可以在不知道液晶盒配向角度的情況下來量測液晶盒的厚度及扭轉角。另一方面我們也藉由模擬及實驗上的觀察探討邊際電場在不同畫素大小及間距下對於反射率及對比度的影響。

Study on the Characteristics of Reflective Twist Nematic Liquid Crystal Display

Student : Der-Yuan Tseng Advisor : Shu-Hsia Chen

Institute of Electro-Optical Engineering

National Chiao Tung University

Abstract

The optical characteristics of LCDs are sensitive to the structural parameters of liquid crystal cells, such as brightness, contrast ratio and response time. At present, several methods have been proposed to measure the cell gap and twist angle of reflective TN-LCDs. In this thesis, we present several simple and precise methods for measuring the cell gap and twist angle of TN-LCDs when the rubbing direction of liquid crystal cell is unknown. On the other hand, we investigate the influences of fringing field effects on the reflectance and the contrast ratio with different pixel sizes and pixel gaps via simulations and experimental observations.