

Liquid crystal aligning capabilities for vertical aligned NLC on the CeO_x thin film layer with thermal evaporation

Jin-Woo Han, Mi-Jung Kim, Jong-Yeon Kim, Jeong-Min Han, Young-Hwan Kim, Jong-Hwan Kim, Byoung-Yong Kim
and Dae-Shik Seo

Department of Electrical and Electronic Engineering (C-724), College of
Engineering, Yonsei University, 134 Shinchon-dong, Seodaemoon-Ku,
Seoul 120-749, Korea

Abstract : In this study, liquid crystal (LC) aligning capabilities for vertical alignment on the CeO_x thin film by thermal evaporation method were investigated. Also, the control of pretilt angles and thermal stabilities of the NLC treated on CeO_x thin film were investigated. The uniform LC alignment on the CeO_x thin film surfaces and good thermal stabilities with thermal evaporation can be achieved. It is considered that the LC alignment on the CeO_x thin film by thermal evaporation is attributed to elastic interaction between LC molecules and micro-grooves at the CeO_x thin film surface created by evaporation. In addition, it can be achieved the good electro-optical (EO) properties of the VA-LCD on CeO_x thin film layer with oblique thermal evaporation.

Key Words : CeO_x, LC alignment, pretilt angle, annealing, thermal stability, response time, voltage-transmittance