

Emiflective Display Mode with Switchable Cholesteric Liquid Crystal Layer and Circular Polarizer

Kyoo Sung Shim¹, Soo In Jo², Chang-Jae Yu^{1,2}, and Jae-Hoon Kim^{1,2}

¹Dept. of Electrics and Computer Engineering, Hanyang University, Seoul 133-791, Korea

Tel.:82-2-2220-0343, E-mail: jhoon@hanyang.ac.kr

²Dept. of Information Display Engineering, Hanyang University, Seoul 133-791, Korea

Liquid crystal display (LCD) technology has been researched on simple structure, cost-effective fabrication, high resolution, thinner thickness, and more portability. Reflective LCD with the advantage of their high performance under outdoor environments is one of the most appealing devices which can be content with these requirements [1]. The most attractive thing of the reflective LCD is the legibility in bright ambient as well as the power saving [2]. In the conventional reflective LCD, the light efficiency is relatively low because incident light experiences the color filter in two times. Cholesteric liquid crystal (ChLC) has attracte much attention since its wavelengthselective reflection [3] without color filter.

In this paper, we introduce a new reflective liquid crystal display configuration using the ChLC films. By using the circular polarizers and ChLC reflection layer, we can modulate the switching characteristics of the incident outer light. The patterned ChLC layer with red, green, and blue can reflect the three colors without color filter, and reflected circularly polarized light can pass through the outer circular polarizer.

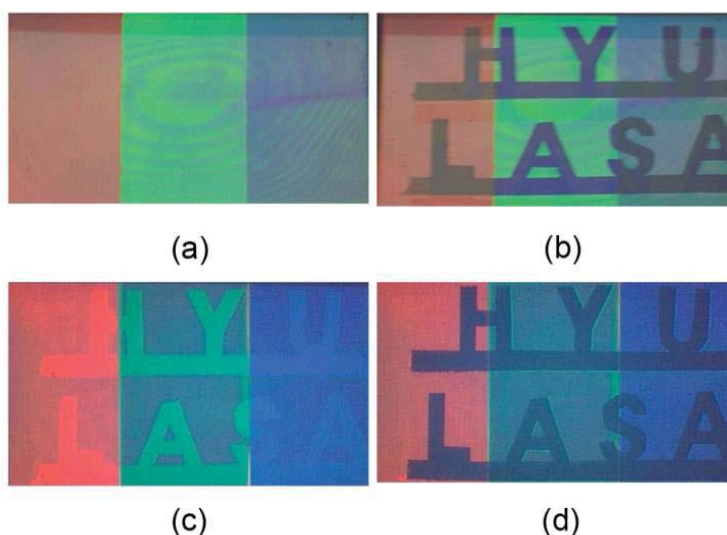


Fig. 1. Proto type sample images for (a), (b) transmissive and (c), (d) reflective mode.

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References

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