

Research an evaluation method of Flicker of TN mode & affect for image sticking

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The paper introduces a analysis method of flicker. The characteristic of LCD and brightness holding status can be judged by phenomena of flicker that it is good or not. And then we can evaluate the factor of image sticking by analyzing characteristic of flicker.

We use photo sensor that is connected to a oscillograph, for detecting the brightness change of every frame. Refer to Fig1. We will test brightness change of LCD at the gray pattern and flicker pattern, and then define the VHR change' trend. Explain the deep reasons at last.

After a group of experiment, We find detecting waveform of flicker has some different form as follow Fig2 .We try to reveal the main reason that lead to waveform variation. It includes many factors. For example as: asymmetry of GMA voltage, photo Ioff of TFT, ΔV_p effect of design, and signal scan sequence. It concludes that it divides two parts, the first is force of electric field charge LC to target voltage, second is Ioff of TFT make LC discharged.

Then we try to decrease the photo Ioff of TFT to make flicker value less. We get the better performance of TN panel of image sticking. When the photo Ioff from 50pA drops to 15pA, phenomena of image sticking can be 1 grade up.(results follow as Fig3), photo Ioff of TFT is main reason about TN image sticking.

Through this method, we can judge fastly the characteristic of photo Ioff and performance of panel's image sticking. Decrease the evaluation time of image sticking test.

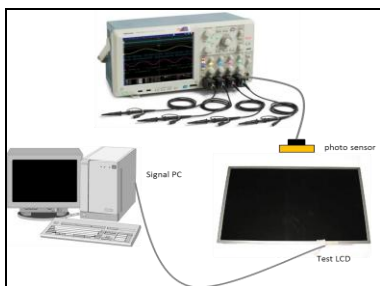


Fig1. Experiment system

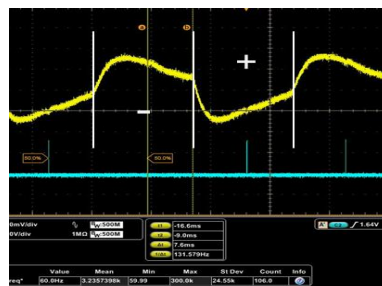


Fig2. photo sensor detect waveform

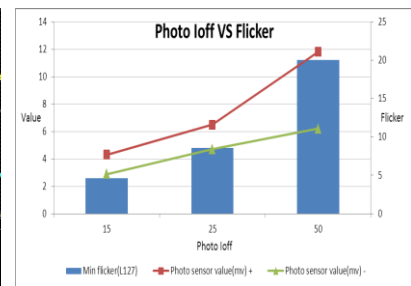


Fig3, Photo Ioff VS Flicker

References

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