



TFT(TN- LCD)产品视向说明

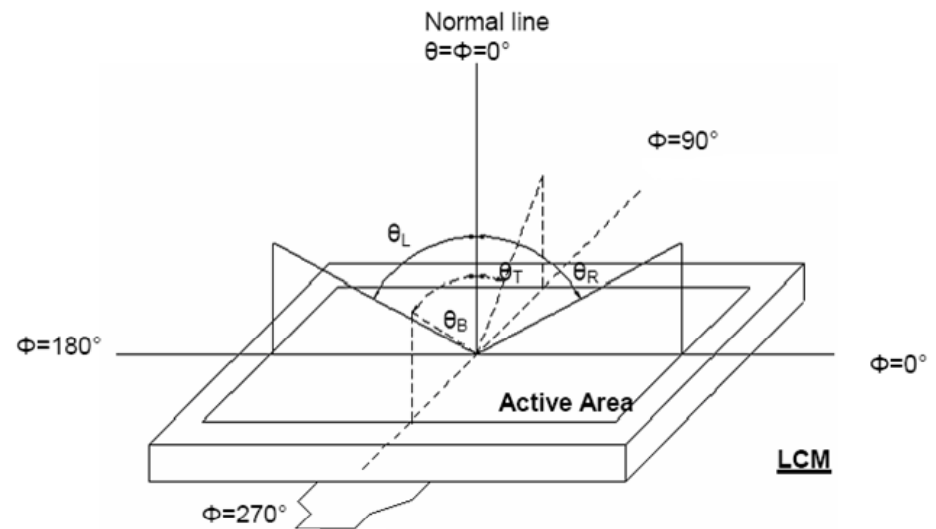
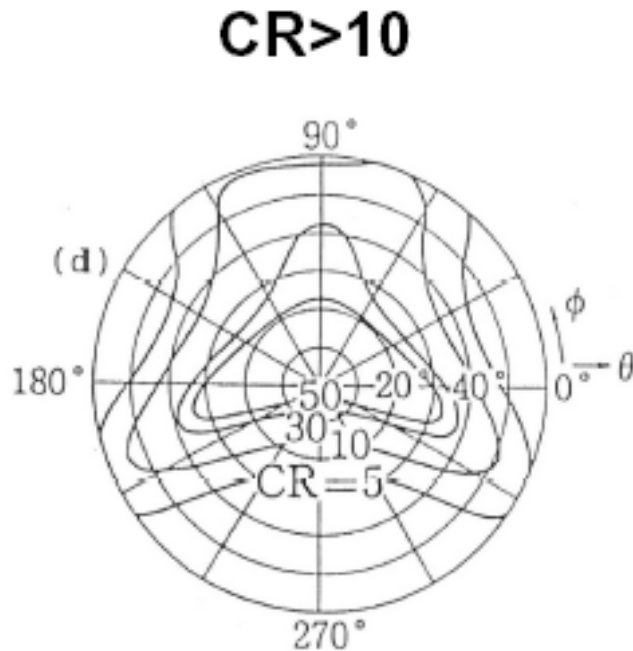
Explanation on TFT (TN-LCD) View Direction

- 1、TFT Panel行业规则：**将灰阶反转方向定义为视向；人眼最佳观察方向是视向（灰阶反转方向）的反方向。相关资料请见本文档第2-6页。
- 2、根据行业规则，冀雅的图纸和规格书做以下规定：**
 - A、图纸中视向按灰阶反转方向标注，示意如下：**
12 : 00 (Gray Inversion)
 - B、规格书中标注灰阶反转方向（Gray scale inversion direction）和最佳观察方向（Optimum view direction），示意如下：**

Gray scale inversion direction	12:00 O'clock
Optimum view direction	6:00 O'clock

视角的定义

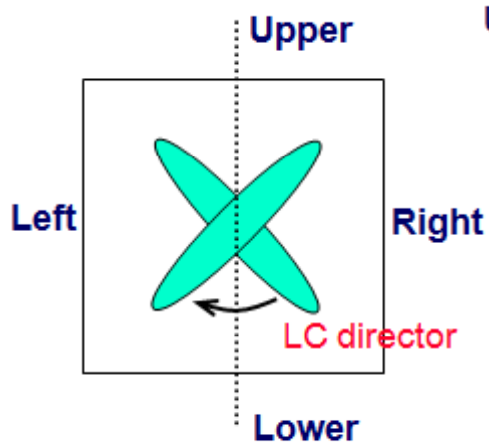
Definition of V.D.



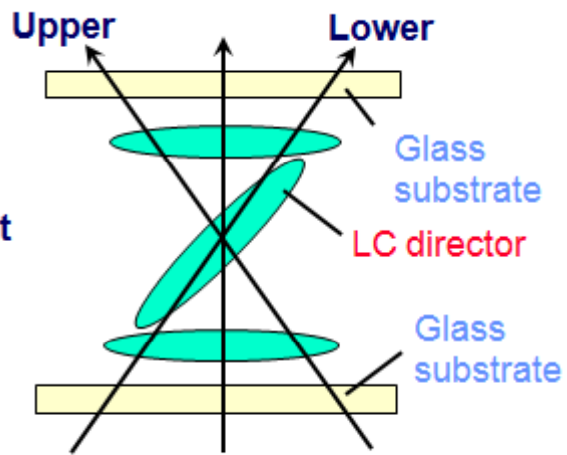
对比度 Contrast Ratio = $\frac{\text{亮态光强度 } I(\text{bright})}{\text{暗态光强度 } I(\text{dark})}$

TN-LCD 的视角限制

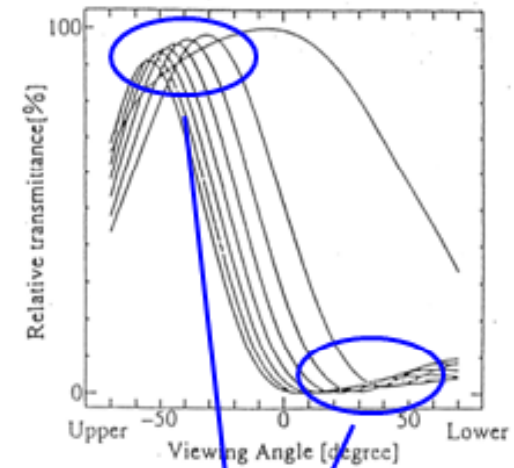
The V.D. Restriction on the TN-LCD



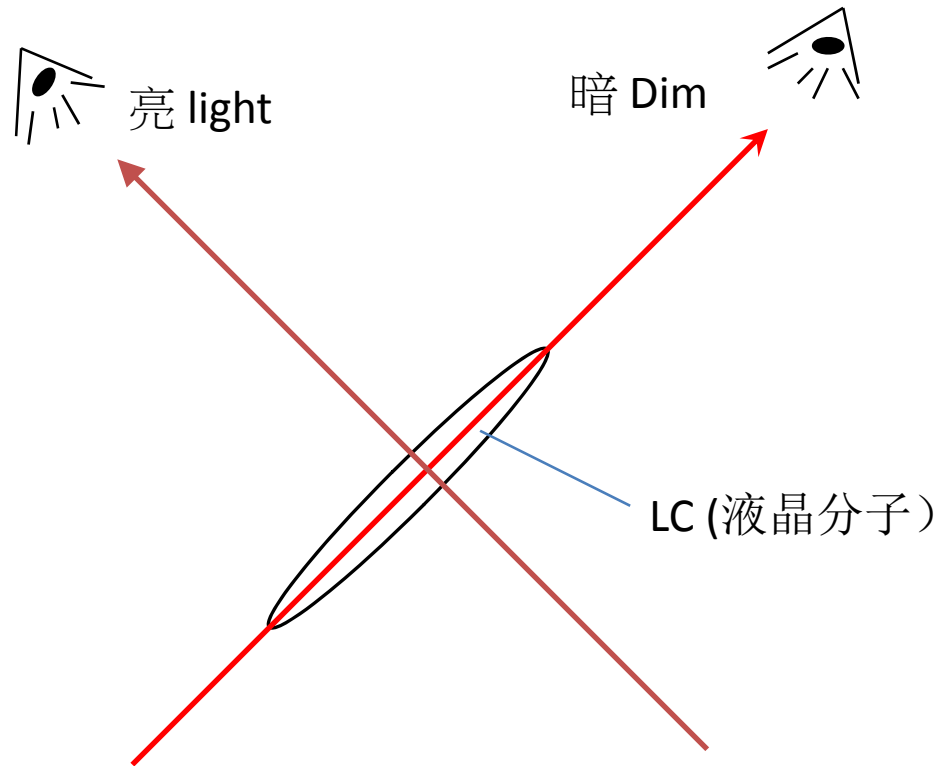
Top View



Side View

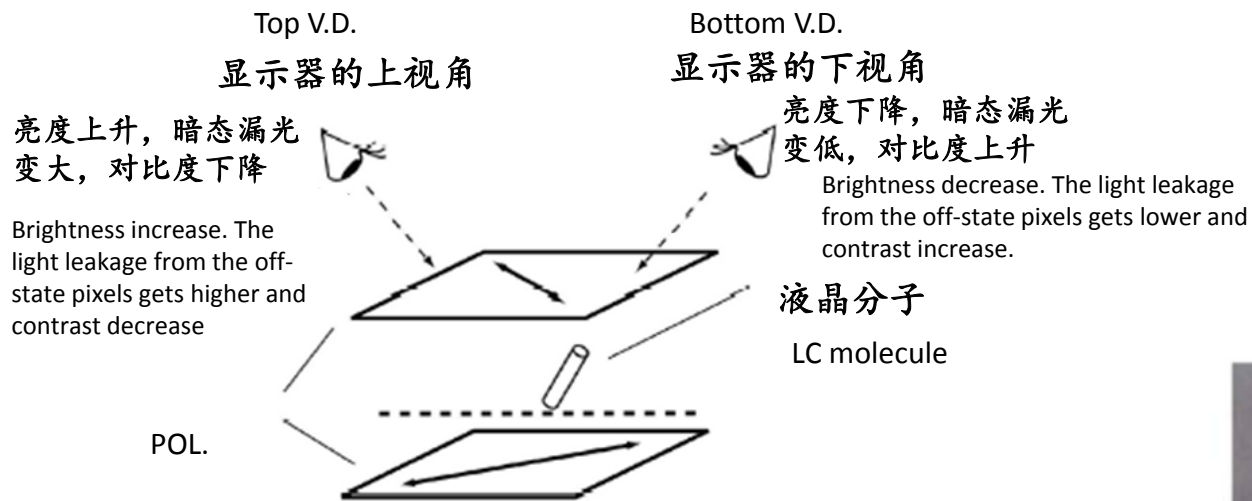


Grey Scale Inversion



视角问题1—对比度下降

V.D. problem 1: contrast decrease



对比度下降示意图

Illustration of the contrast decrease

$$\text{对比度 Contrast Ratio} = \frac{\text{亮态光强度 } I(\text{bright})}{\text{暗态光强度 } I(\text{dark})}$$



上视角

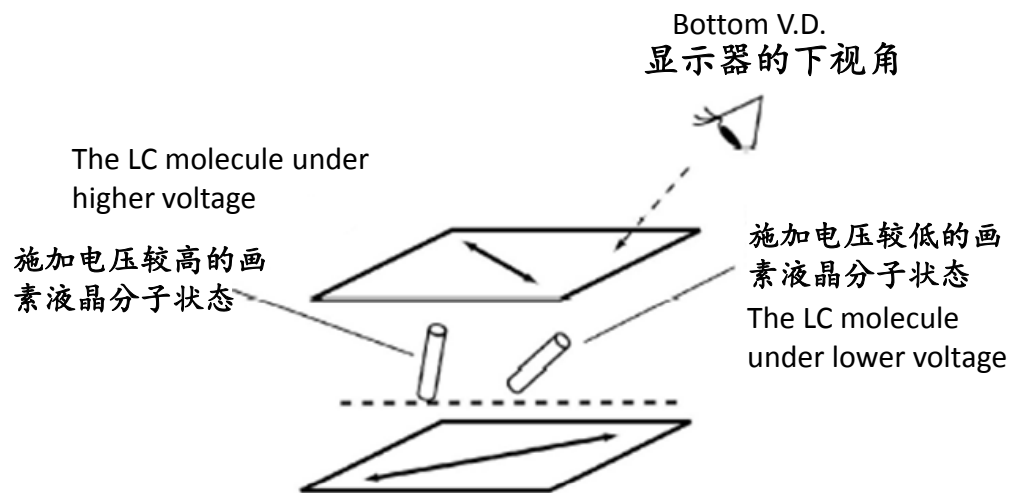
Top V.D.



下视角

Bottom V.D.

视角问题2—灰阶反转 V.D. problem 2: Gray scale inversion



灰阶反转示意图

Illustration of the gray scale inversion

Normally white: 电压讯号高—表现暗态
电压讯号低—表现亮态

Normally white: Pixels under higher voltage – off-state
Pixels under lower voltage – on-state

下视角观察画面时: 电压讯号高—出现亮态
电压讯号低—出现暗态

From bottom V.D.: Pixels under higher voltage – on-state
Pixels under lower voltage – off-state

下视角
Bottom V.D.



注意: 下视角的灰阶反转是在某部分灰阶才会出现反转问题, 并不一定所有灰阶都会出现, 在哪些灰阶会出现和液晶盒条件与下视角的实际角度有关

Note: G.S. inversion from the bottom view happens on part of the grayscale levels. It doesn't necessarily happen on all the grayscale levels. It relates to the cell condition and the certain viewing angle.