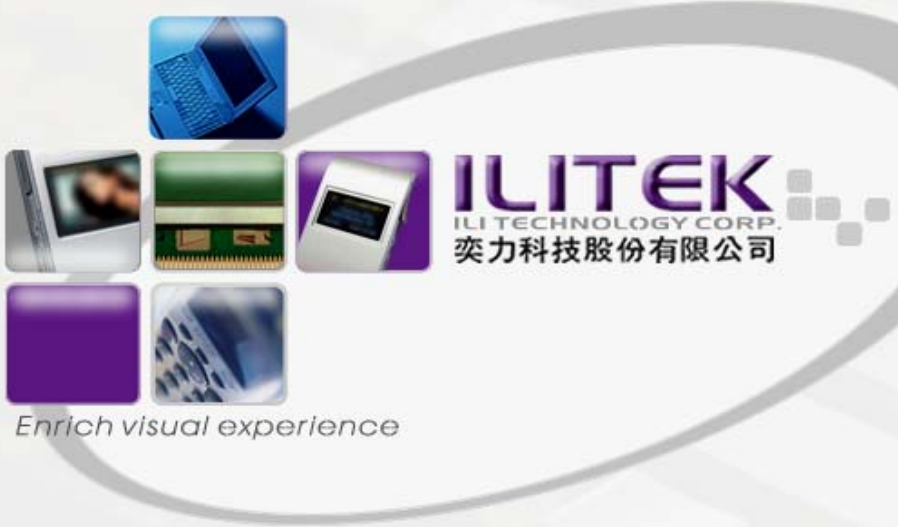
ILITEK 奕力科技

仅适用于闪耀液晶产品



ILI9320 Gamma 调整

connan40.taobao.com

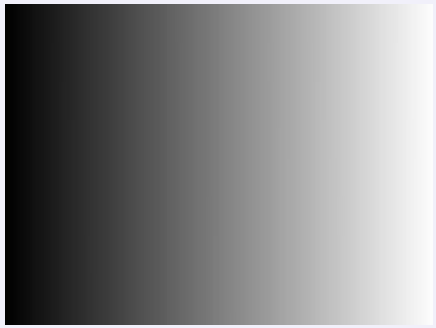
Contents

- ★ Gamma Basic
- ★ Vcom AC - R13H
- ★ VcomH - R29H
- ★ Gamma Table - R30H～R3DH
- ★ 色块
- ★ Vcc
- ★ Q&A

Gamma

Gamma1.0

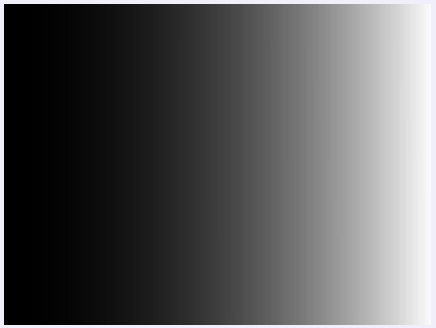
Gamma2.2



Gray0

Gray255

Gamma3.0



颜色较浅

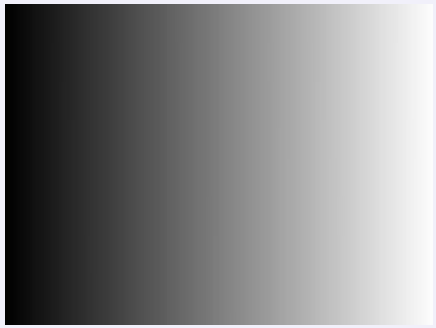
正常

颜色较深

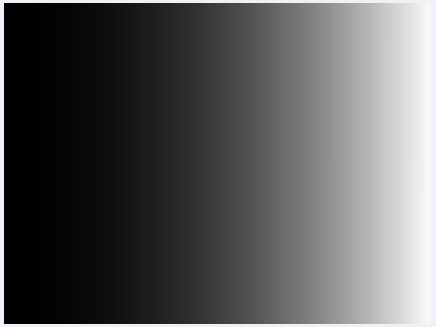
Gamma

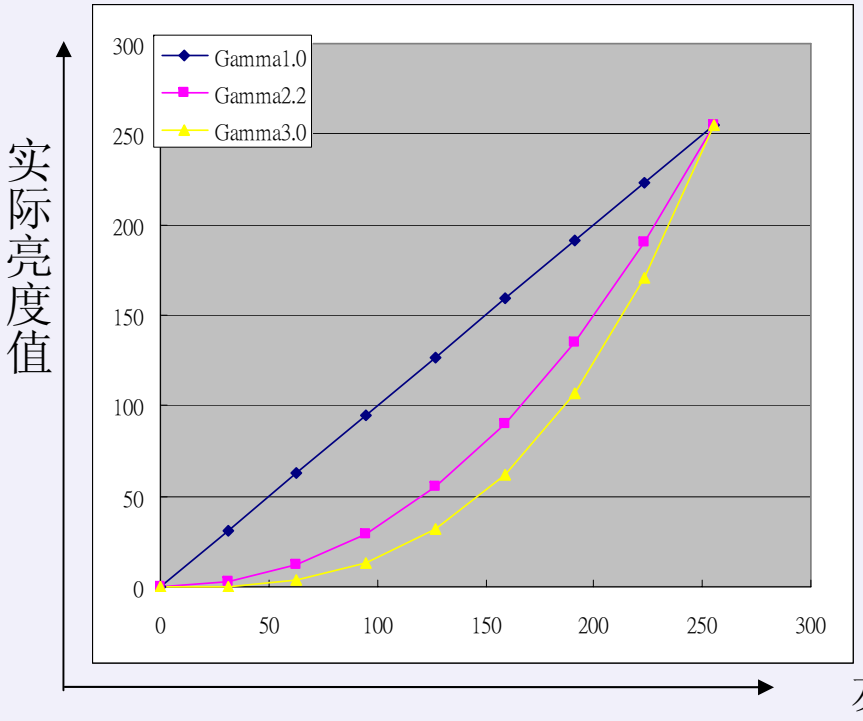
Gamma1.0

Gamma2.2

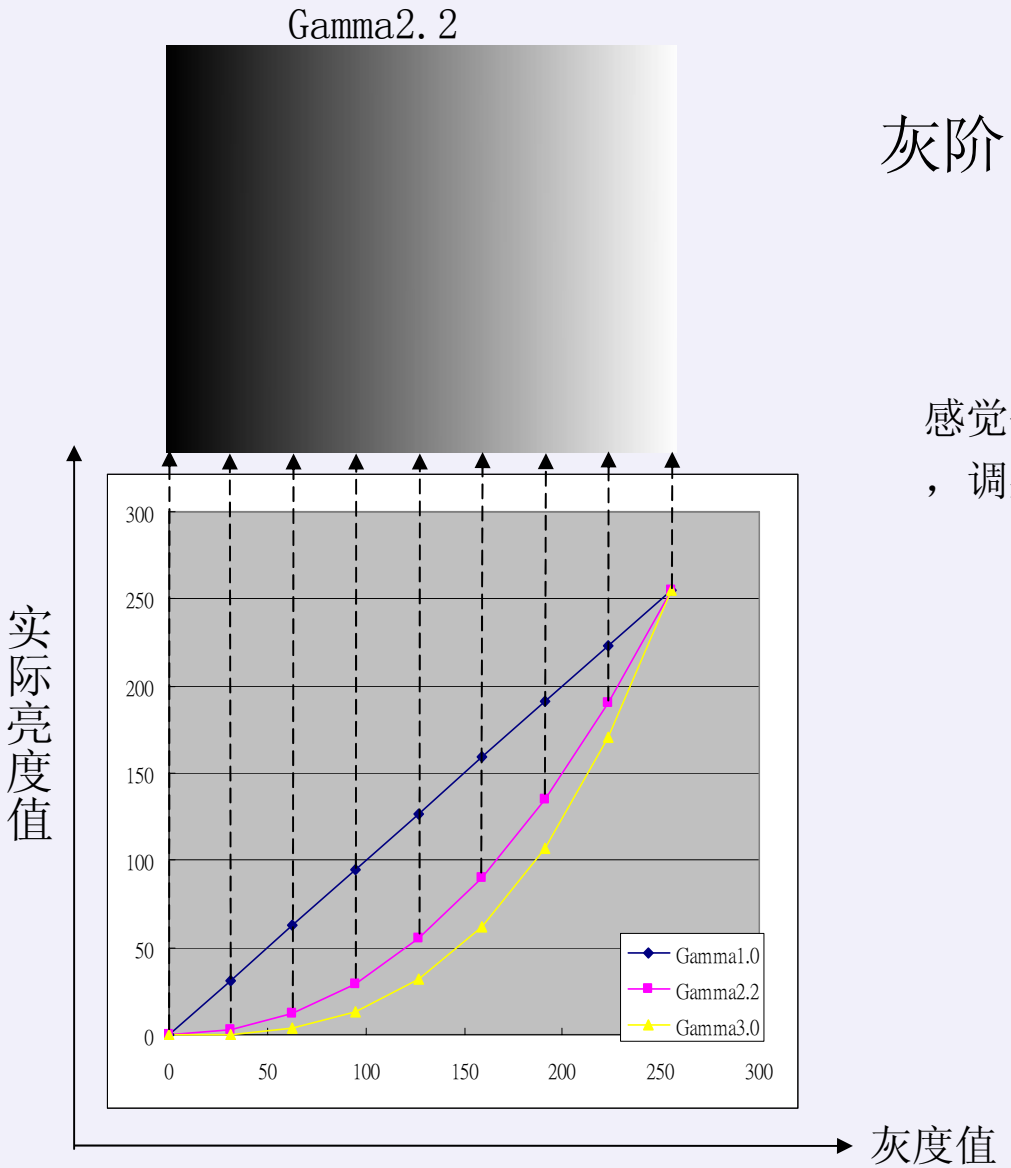


Gamma3.0





Gamma 值越大，
画面颜色将会偏深



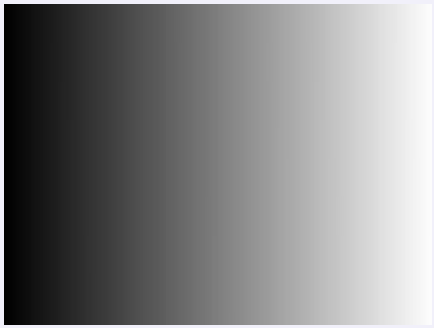
灰阶图片与 Gamma 曲线对应状况

因为人的眼睛对于黑阶的亮度变化，感觉会比较明显，因此将画面的亮度变化，调整至 Gamma2.2 的效果！

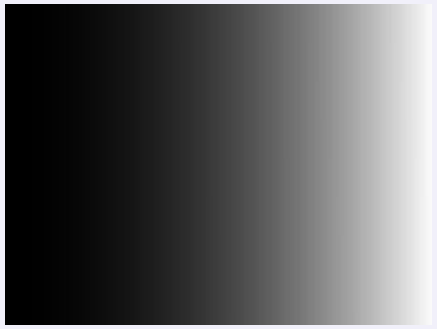
VCOM AC

R13 = 0x10

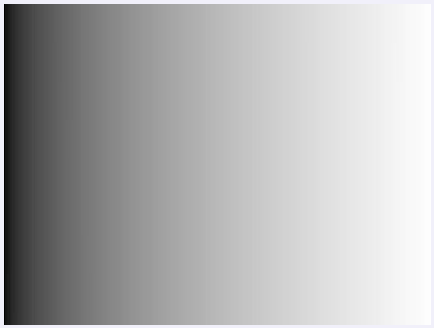
R13 = 0x14



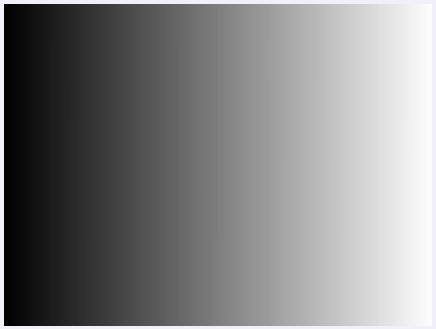
R13 = 0x18



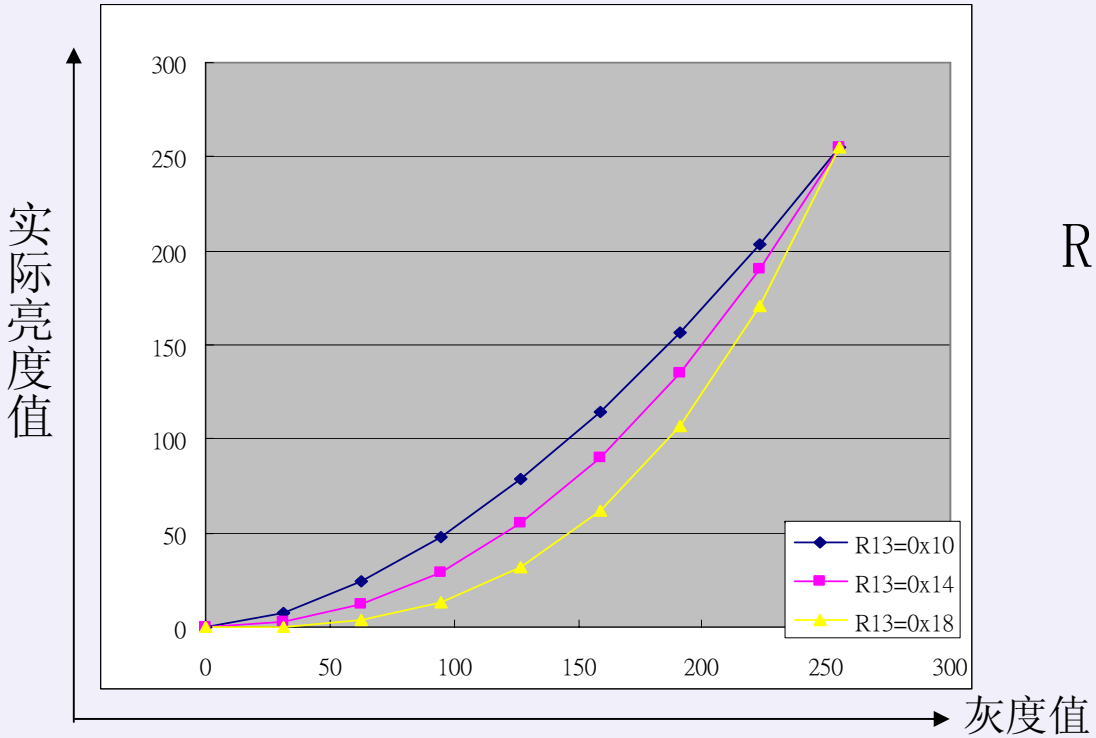
R13 = 0x10



R13 = 0x14



R13 = 0x18

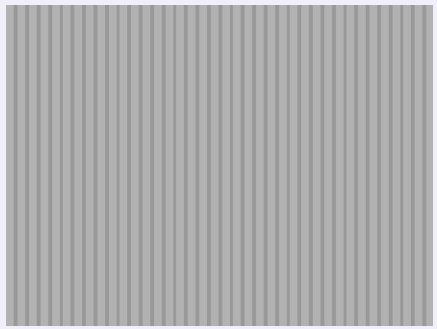


R13 增加

（VcomAC增加）

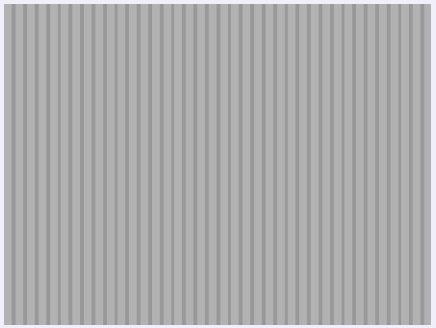
=> 画面变黑！

R29 = 0x08

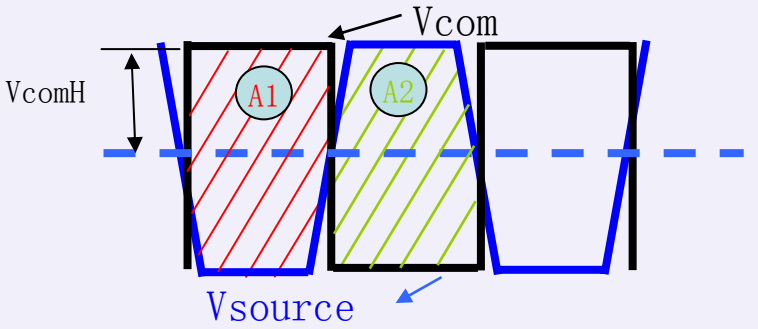


R29 = 0x10

R29 = 0x12



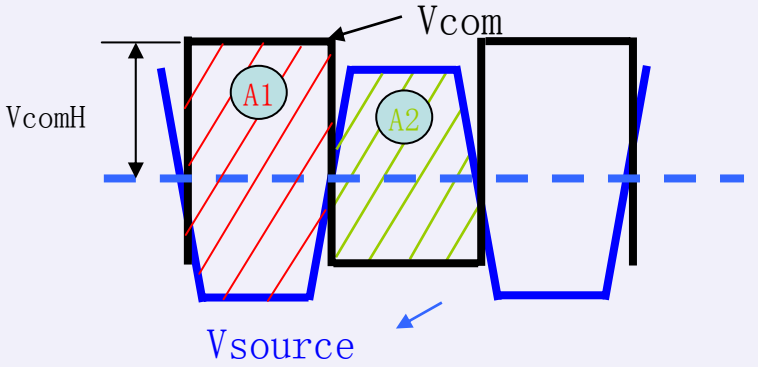
（实际画面不会如此严重， 此为示意图）



A1 = A2

理想情况下，此状况不会有 flicker;

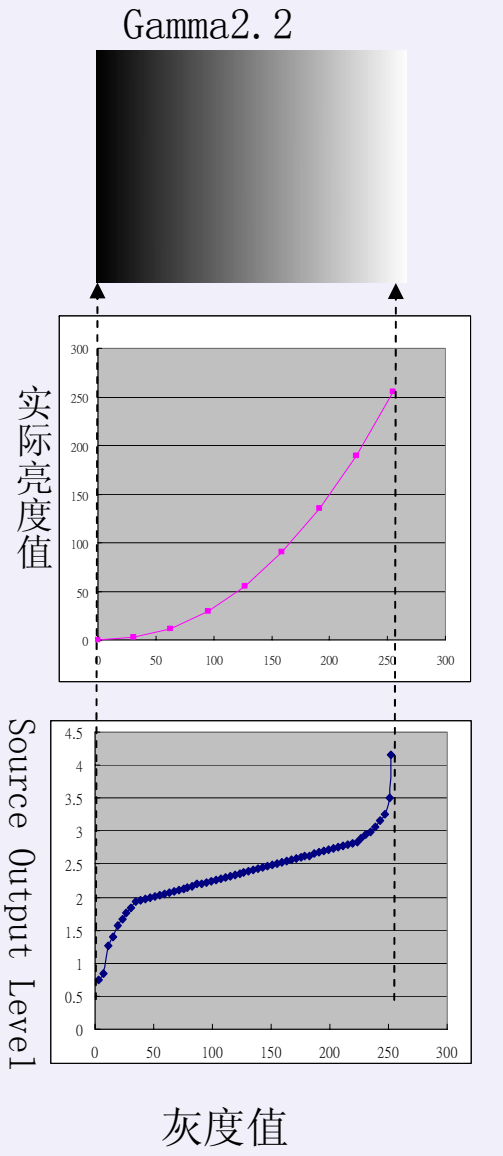
但实际应用，因为液晶寄生电容效应，此情况会有 flicker

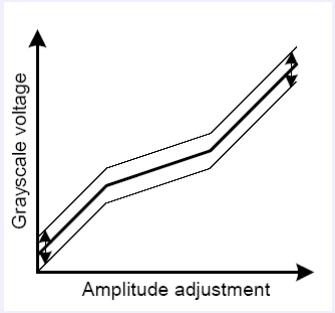


A1 − C′ = A2 + C′

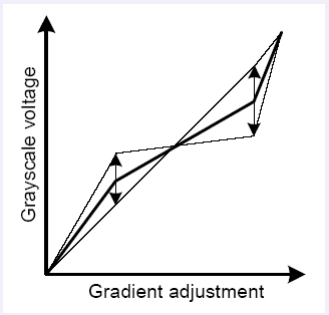
但考虑液晶寄生电容效应，因此 VcomH 需有偏压，才会让面积相同!

Gamma - R30～R3D

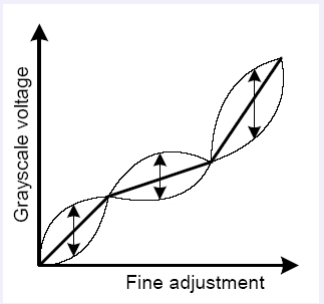




R36、R3D

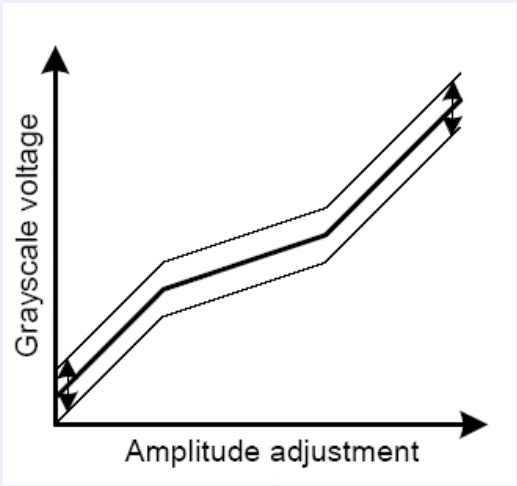


R35、R3C



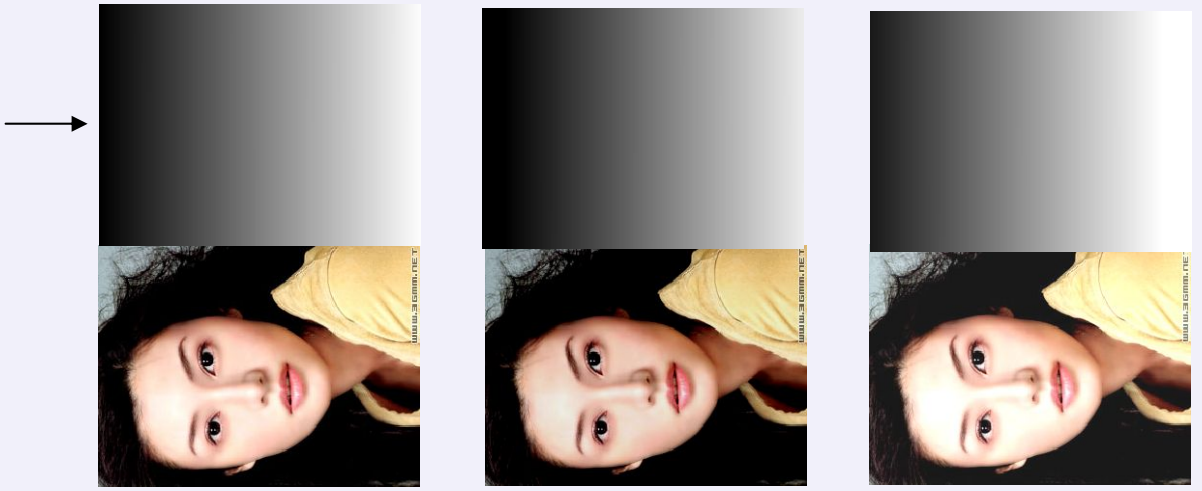
R32、R39
R31、R38
R30、R37

Gamma - R36 & R3D

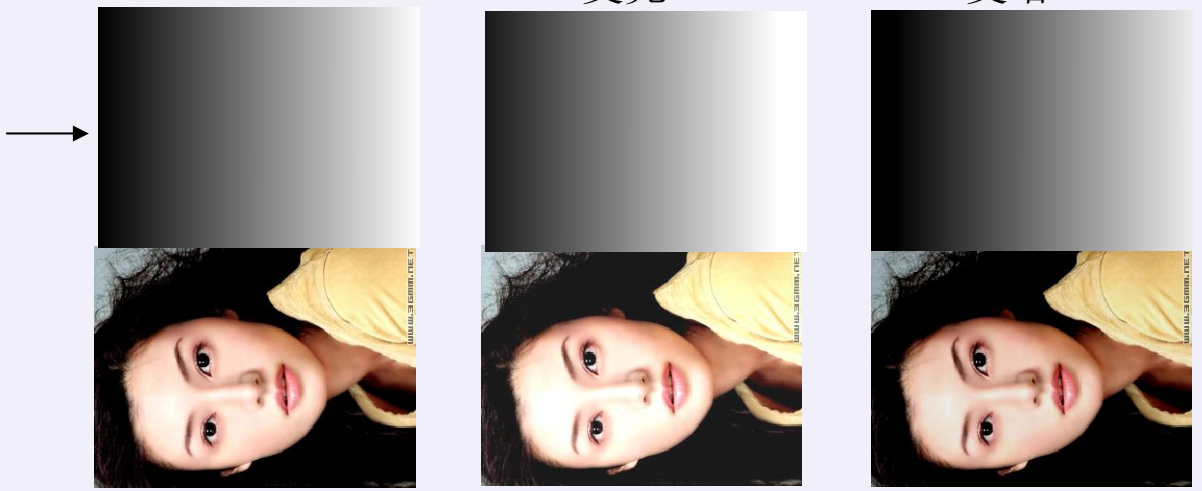


高八位增大　　低八位增大

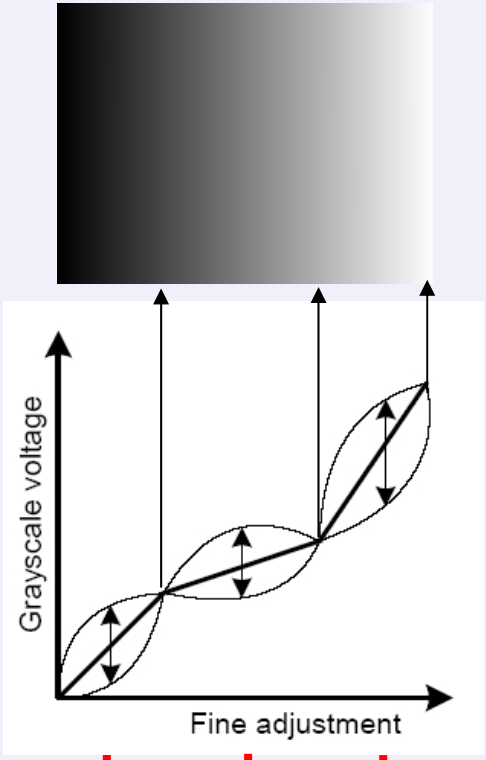
R36　　变暗　　变亮



R3D　　变亮　　变暗



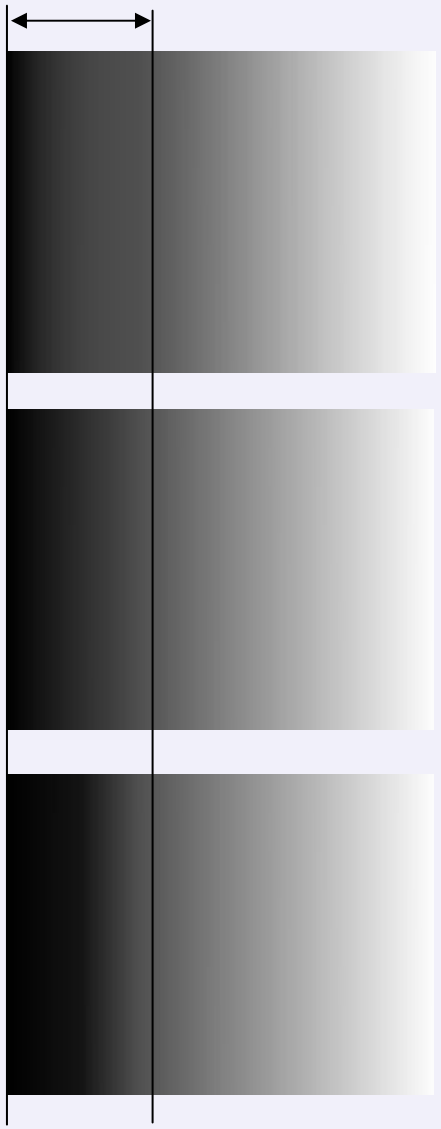
Gamma - R30 & R39



R30 R31 R32

R39 R38 R37

暗阶 中阶 亮阶



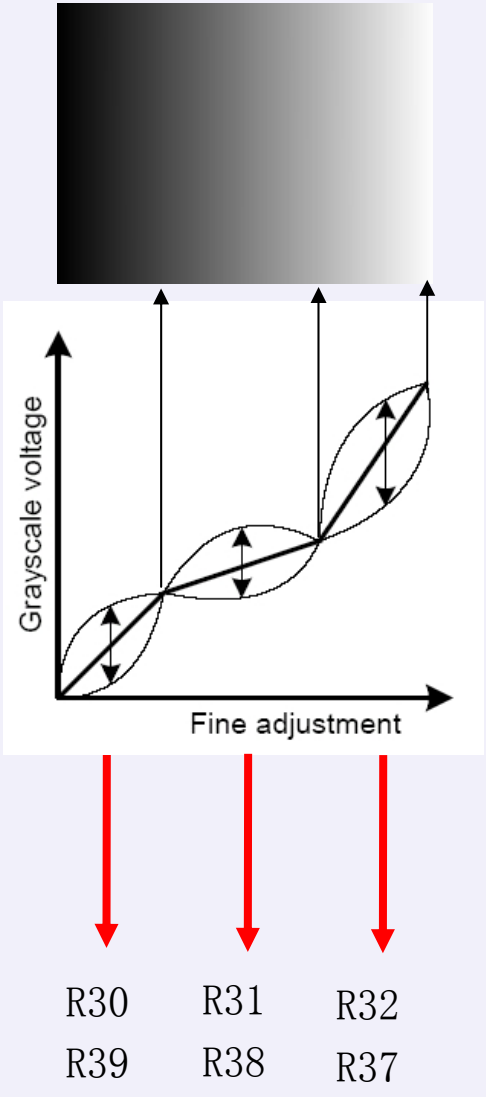
低亮度部分
=>变亮

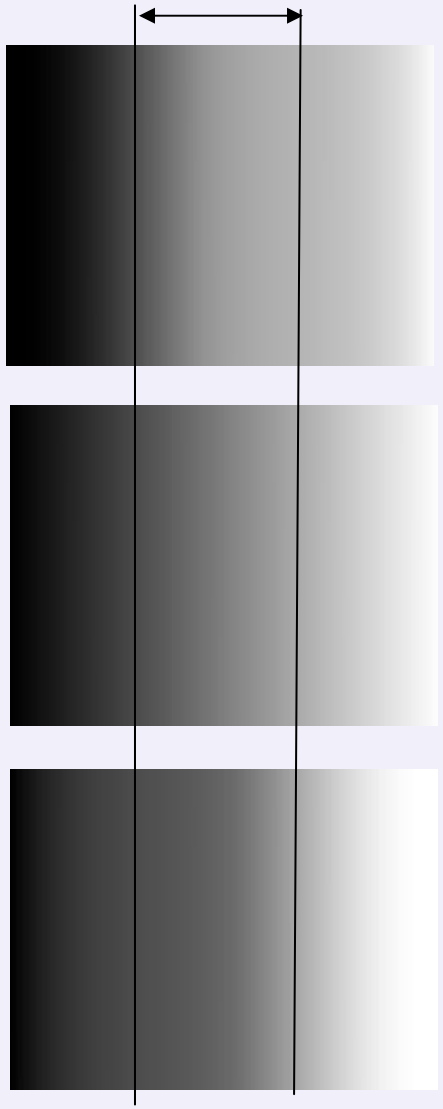
	高八位	低八位
	增大	增大
R30	变亮	变亮
R39	变暗	变暗

低亮度部分
=>变暗

- 暗阶影响为主，
  中阶与亮阶影响较小

Gamma - R31 & R38





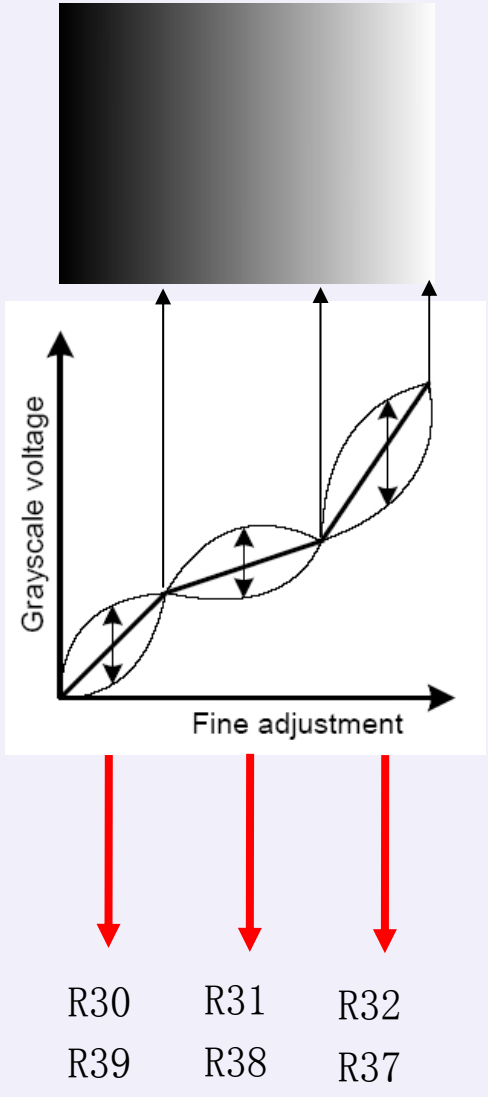
中亮度部分
=>变亮

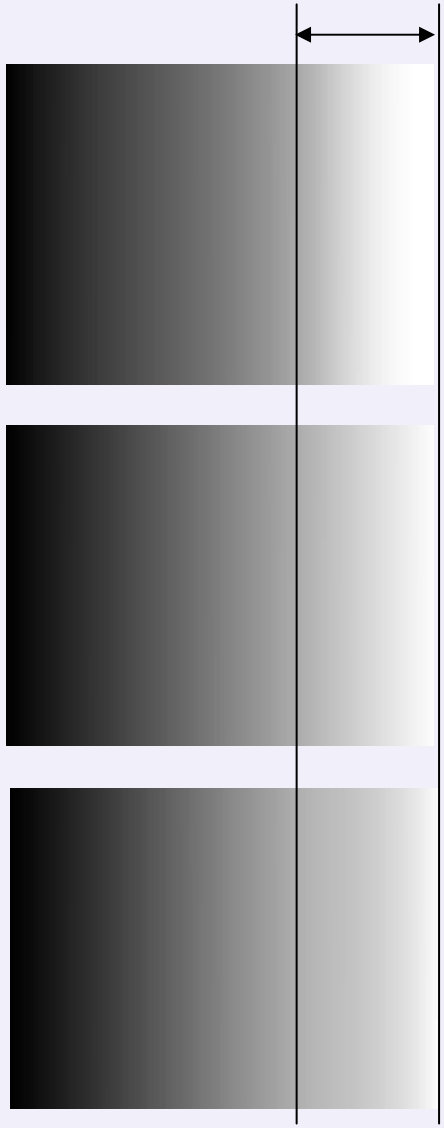
	高八位	低八位
	增大	增大
R31	变亮	变亮
R38	变暗	变暗

中亮度部分
=>变暗

- 中阶影响为主，
  亮阶与暗阶影响较小

Gamma - R32 & R37





高亮度部分
=>变亮

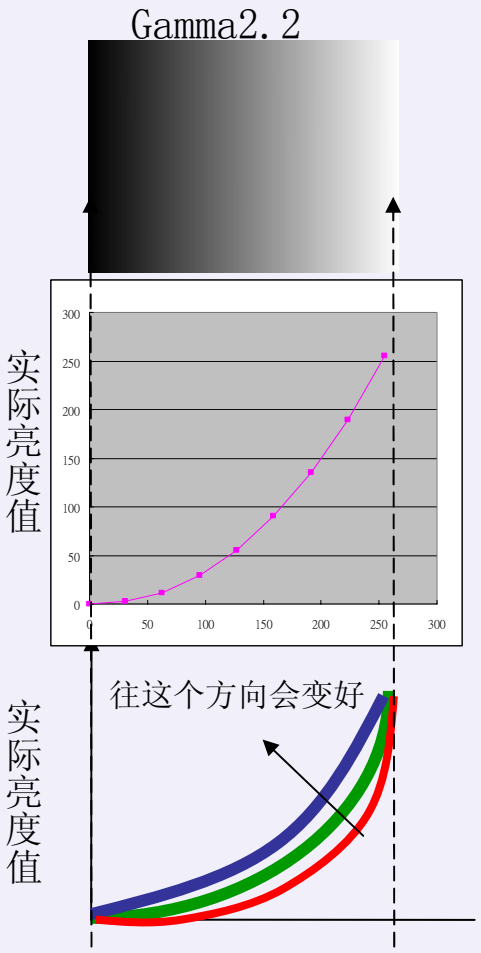
	高八位	低八位
	增大	增大
R32	变亮	变亮
R37	变暗	变暗

高亮度部分
=>变暗

- 高阶影响为主，
  中阶与暗阶影响较小

色块

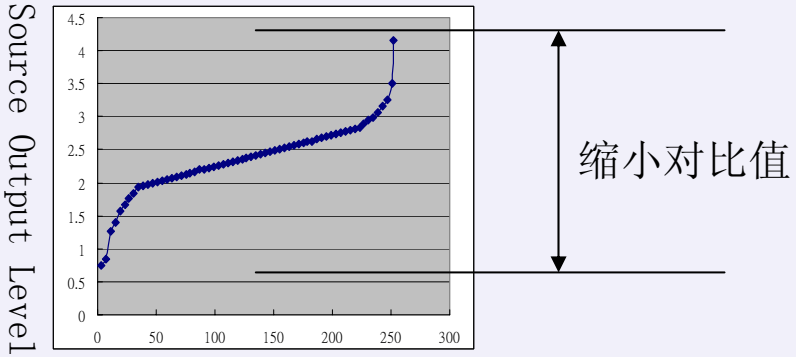
Way1: => 调整 R13 H



参考第六页，

但画面整体颜色可能会变浅！

Way2 : => 调整 R12H



灰度值

★此值不宜变动太大，避免有副作用！

对比较大

产生色块

正常

对比较小

画面模糊

VCC 与画面的关系

与液晶相关的主电压：　　Vcom AC 与 Vreglout

Vcom AC = Vreglout * VDV[4:0] (R13H)

Verglout = Vci * VC[2:0] (R11H)

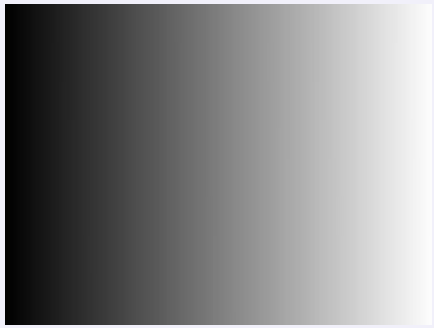
Vcc=Vci

Vcc 增大，Vcom AC 变大　=> 跟调整 R13 H 寄存器效果类似!

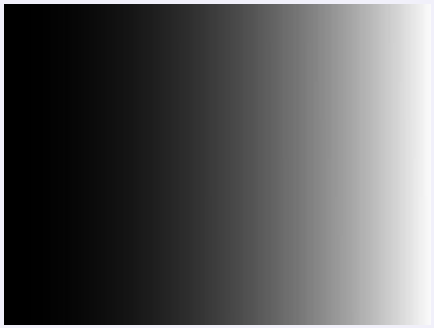
Vcc 增大，Vreglout 变大 => 跟调整 R12 H 寄存器效果类似!

★ 可以通过调整 R11H 来修正 Vci 的值，
进而影响 Vcom AC , Vreglout!

Vcc=2.8V　正常画面



Vcc=3.3V　画面较暗



Q & A Time

Thank You

Enrich Visual Experience

感谢您使用我司的 IC

peter.yang@pmo.com.hk
Mobile: 135-1038-3260

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