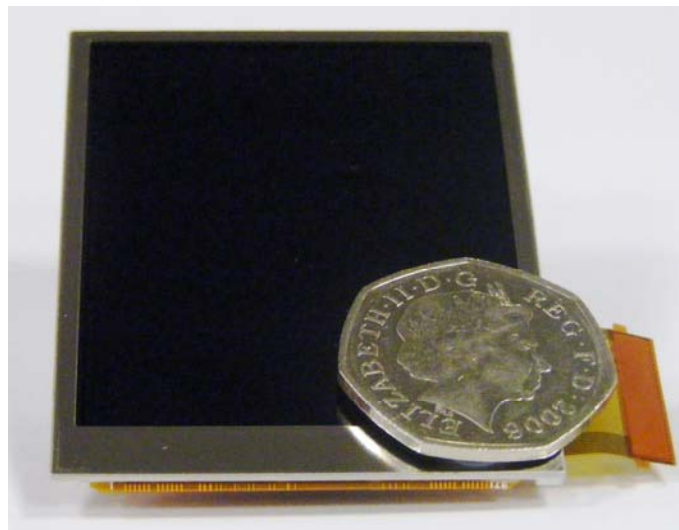


DENSITRON[®]
DISPLAYS

AMOLED



■ WHY AMOLED

■ COMPARISON OF AMOLED & TFT-LCD

■ POWER CONSUMPTION, RESPONSE TIME & CONTRAST RATIO

■ VIEW ANGLE

■ LIFE TIME

Why AMOLED - Merit

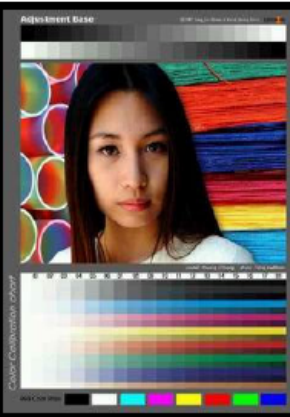

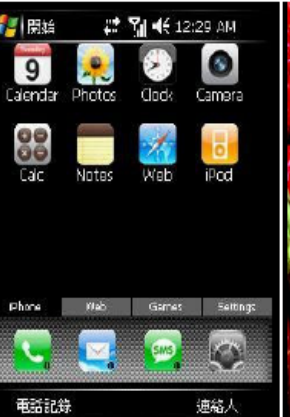


- Supreme Image Quality
- Ultra Thin & Light
- Free of Viewing Angle
- Ultra Fast Response Time
- Wide Operation Temp. Range
- Low Power Consumption

Comparison of AMOLED & TFT-LCD

Small & Medium size panel comparison

| Item | | AMOLED | TFT-LCD |
|--|-----------|-------------------|-------------------|
| Contrast Ratio (Sunlight Readable) | Dark Room | >10,000:1 | 300 |
| | Rainy | 400 | 130 |
| | Cloudy | 190 | 10 |
| | Sun light | 50 | 4 |
| Thickness | | ~ 1.3mm (typ.) | ~2.0mm (typ.) |
| Response Time | | ~ 50 μ s | ~25,000 μ s |
| Viewing Angle | | 180°(UD)/180°(LR) | 100°(UD)/120°(LR) |
| Operation Temp. | | -40°C~70°C | -20°C~70°C |
| Color Gamma | | ~73% | 40%~60% |

Power Consumption Comparison

| <div>Pattern</div> <div>Power Con.</div> |  |  |  |  |  |
|--|---|--|---|---|---|
| AMOLED | 168.75mW | 176.25mW | 90.75mW | 146.25mW | 126.75mW |
| TFT-LCD | 224.17mW | 224.17mW | 224.23mW | 224.24mW | 224.25mW |
| % (AMOLED/ TFT-LCD) | 75.28% | 78.62% | 40.27% | 65.22% | 56.52% |

*Brightness Based on 200 nits

*Based on CMEL 2.4" AMOLED

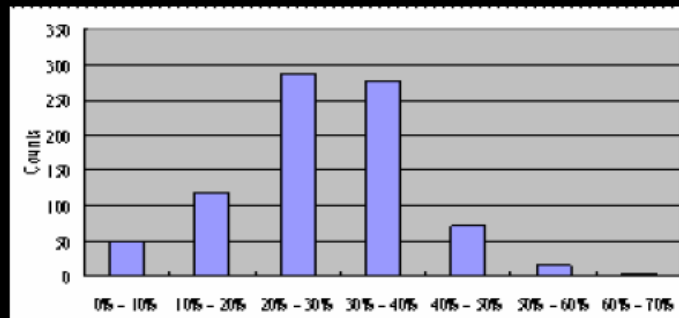
Display Solutions Supported by Expertise

DENSITRON®
DISPLAYS

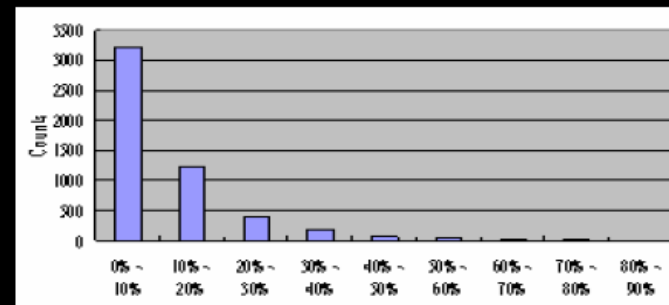
Average Power Consumption of OLED

AMOLED 2.4" panel PC = 738 mW (@ 200 nits, 100% on)

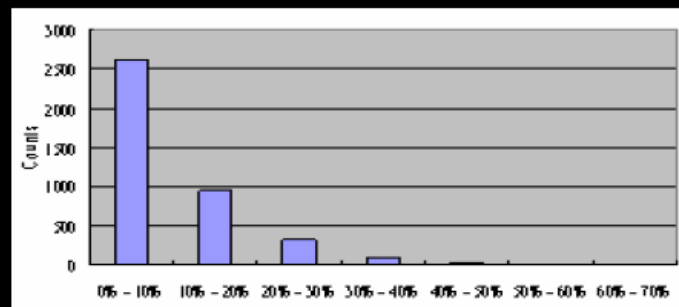
photos average PC ~28.2% 222.5mW
(DSC Photo – 818 pictures)



Cartoon average PC ~ 11.06% 99.4mW
(Teenage Mutant Ninja Turtles – 5176 pictures)



Movie average PC ~ 9.57% 88.7mW
(007:Casino Royal – 3960 pictures)



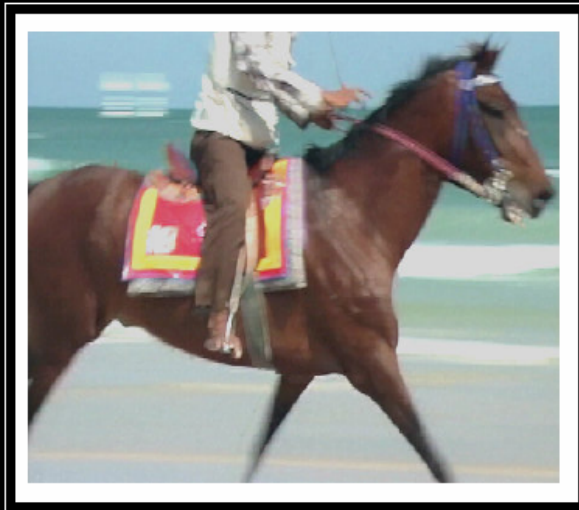
Average PC < 30% full white PC



CMEL
CHI MEI EL CORPORATION

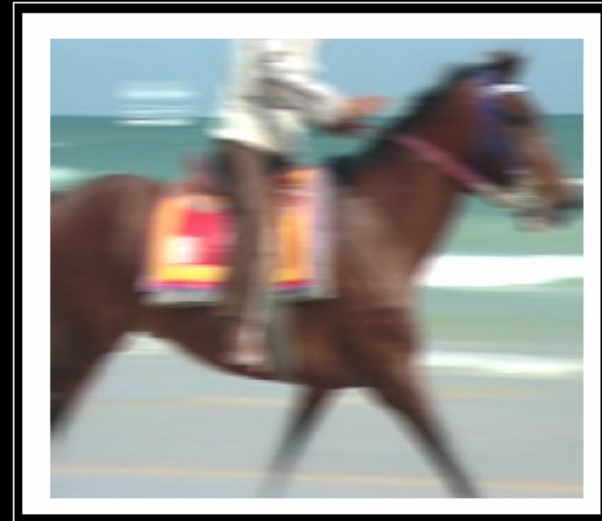
Fast Response Time for Moving Picture

OLED Display



Response time ($t_r + t_f$) < 50 μ s

TFT - LCD Display



$t_r + t_f > 25,000 \mu$ s

■ **Slow response time will lower the resolution on moving picture**

Display Solutions Supported by Expertise

DENSITRON[®]
DISPLAYS

High Contrast Ratio

OLED Display



OLED: > 10,000 : 1

TFT - LCD Display



TFT-LCD: < 500 : 1

■ High Contrast Ratio make image feel **brighter**

Horizontal View Angle Pictures

**CMEL
AMOLED**



TFT_LCD



Display Solutions Supported by Expertise

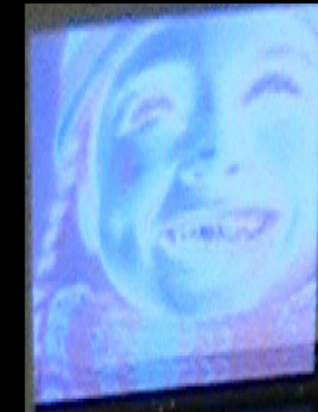
DENSITRON®
DISPLAYS

Vertical View Angle Pictures

**CMEL
AMOLED**



TFT_LCD





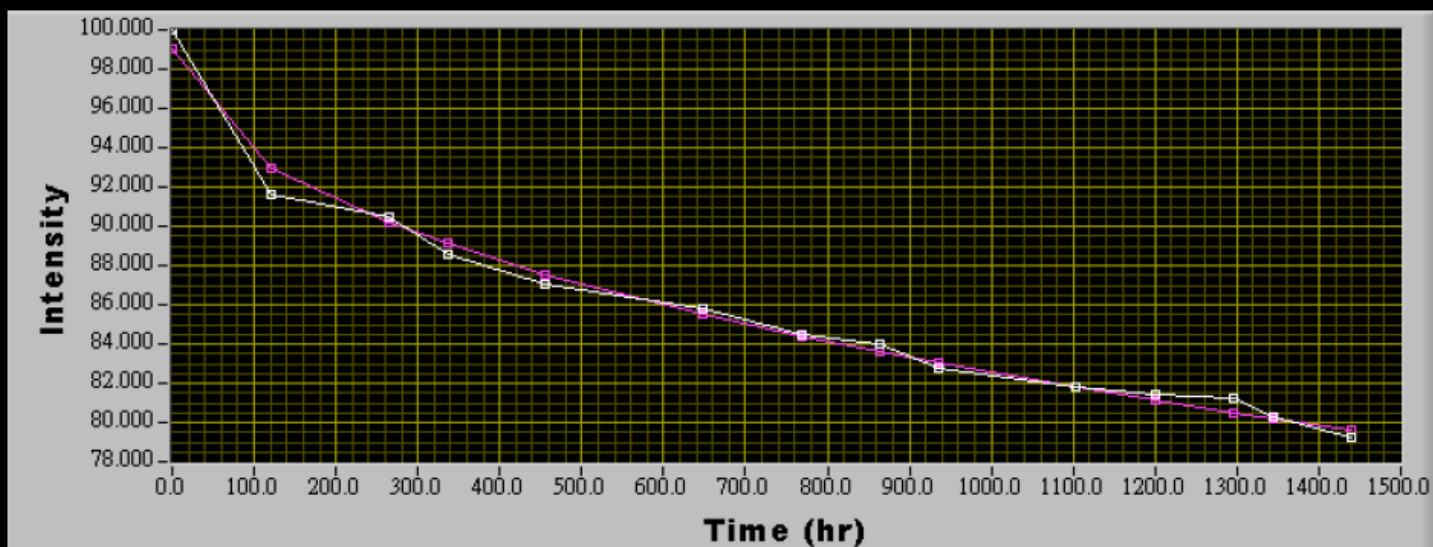
Display Solutions Supported by Expertise

DENSITRON[®]
DISPLAYS

Life Time – 2.0” AMOLED

Experiment Start date : 2007 Jan.

Original data 
Fitted data 

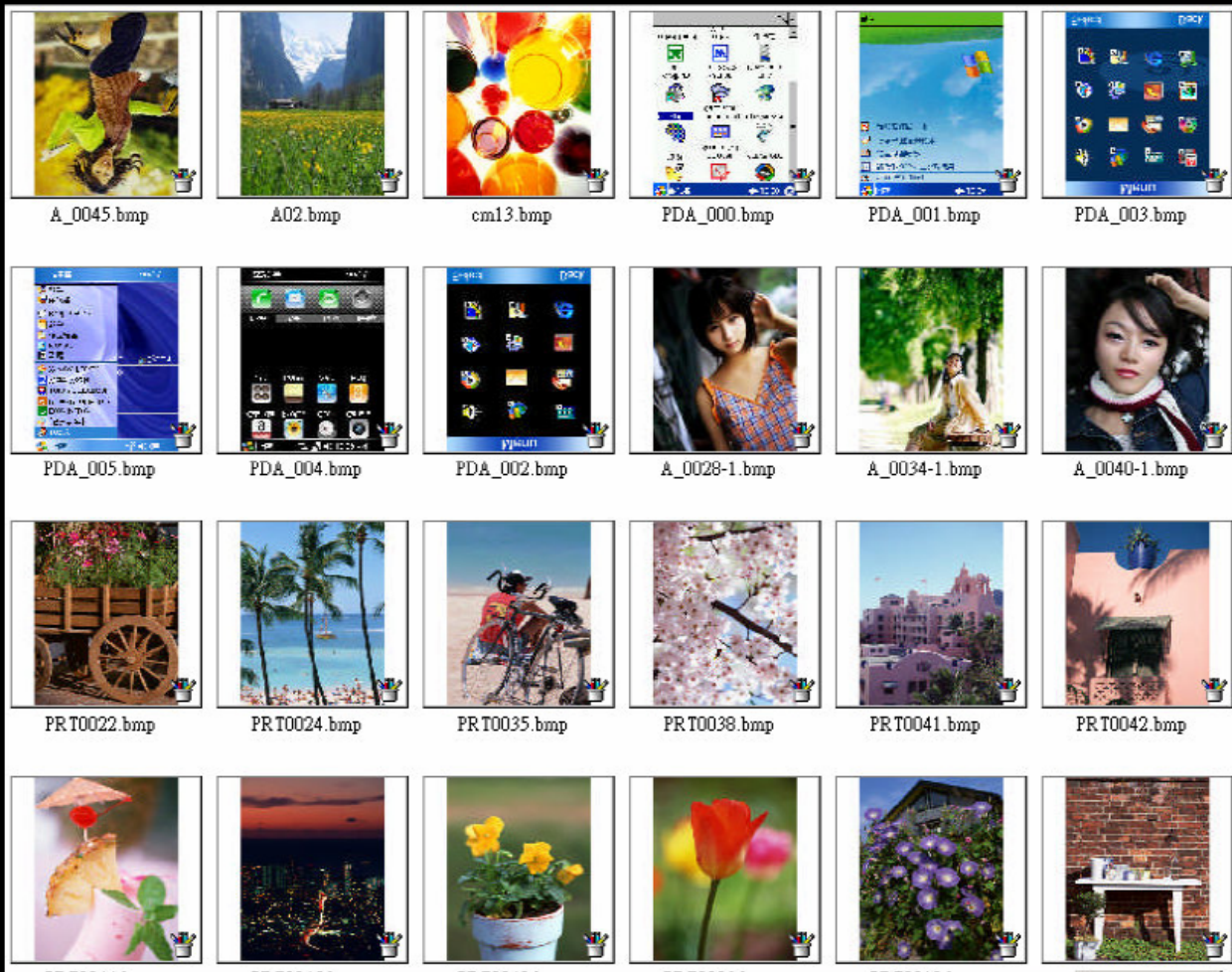


■ Full pixel on lifetime: **14,513 hrs**

■ 30% Power Consumption pattern lifetime estimation: >
43,539 hrs (~3 times of full white)



*Experiment before aging. Based on 150 nits.

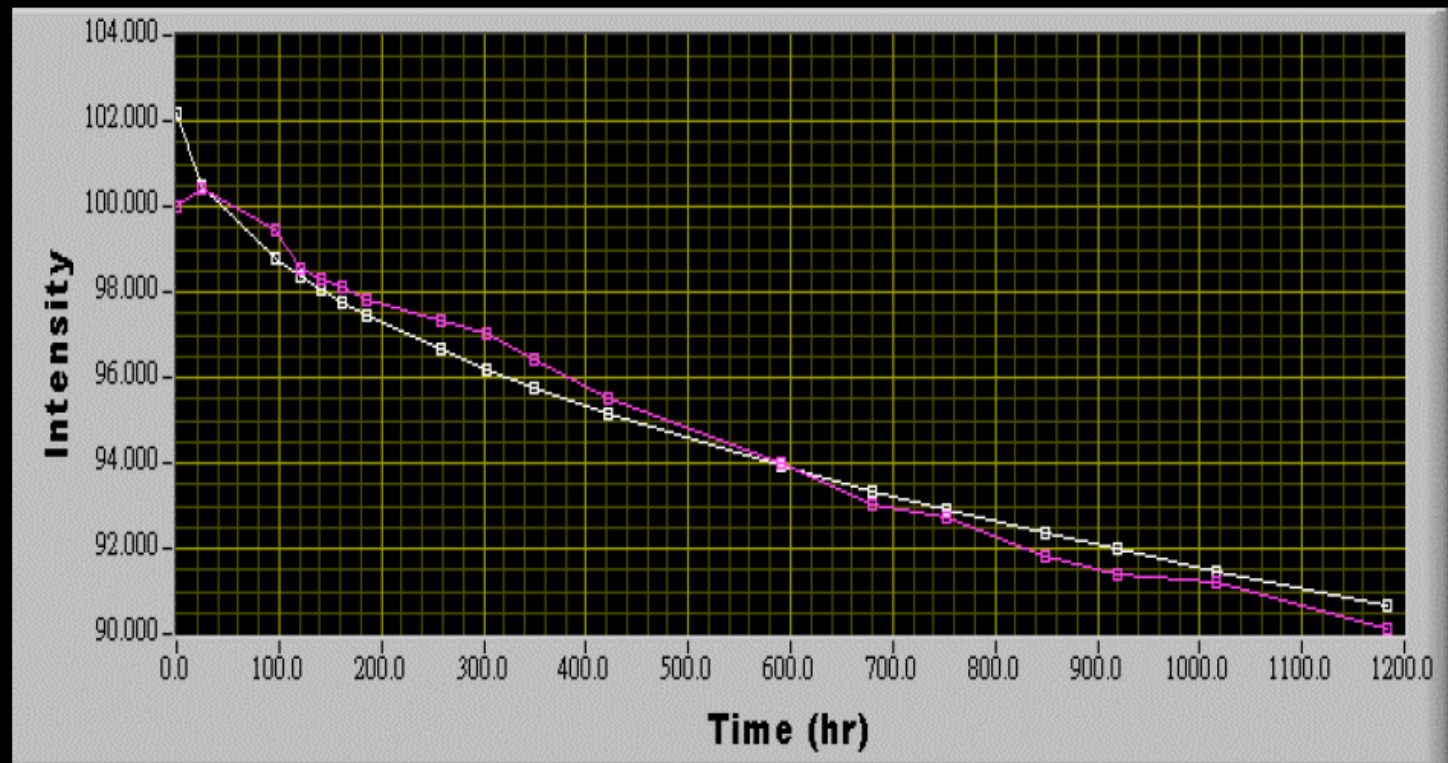
Pictures changing (more than 100 various displays)



Life Time – 2.4” AMOLED

Lifetime Evaluation based on 30% Power Consumption

Original data 
Fitted data 



- Lifetime is around **39877 hrs** -

Display Solutions Supported by Expertise

DENSITRON®
DISPLAYS

Interested in finding out more?

Our dedicated technical support team will be very happy to answer any question that you may have on AMOLED and assist with your design, please contact us at:

Densitron Displays

T +44 (0) 207 648 4200

F +44 (0) 207 648 4201

sales@densitron.co.uk

Display Solutions Supported by Expertise

DENSITRON[®]
DISPLAYS