

## DISPLAY TECHNOLOGIES COMPARED

|   | CRT   | LCD   | PLASMA   |
|---|---|---|--|
| Technology  | Single Cathode Ray Tube scans the screen activating phosphor atoms ("lightning storm in a bottle"). | Thin Film Transistors (TFT) are used to switch individual pixels on and off (shutter effect like venetian blinds)   | Low power ultraviolet radiation and pulse-width modulation used to stimulate colour phosphors      |
| Front Panel   | Glass   | Usually acrylic (glass can be available as an option)   | Glass  |
| Size  | Very deep due to tube   | around 100mm deep   | around 100mm deep  |
| Weight  | Heavy   | under 30kg for 40"  | around 30kg for 40+"   |
| Installation Flexibility  | Poor due to size & weight   | Excellent   | Excellent  |
| Cost  | Low (mature technology)   | Very high (new technology)  | High (new technology)  |
| Life Expectancy (there are many variables here & no clear preference) | Tube life around 30,000 hours depending on application - retains brightness uniformity well         | 30-60,000 hours or more depending on application (backlight can be replaced in some cases)  | 30-60,000 hours or more depending on application   |
| Resolution  | Not pixel technology so relies on faster scanning (up to 135kHz)                                    | up to 1920 x 1080 (full HD) for 42"+ screen sizes   | up to 1920 x 1080 (full HD) for 50"+ screen size   |
| Video Display Performance   | Excellent - fast response times well suited to fast moving images                                   | Depends on the ability of the liquid crystals to switch quickly(refresh rate). Refresh rate < 8msec recommended for video applications. The slower the refresh rate & the larger the screen - the more noticeable the image lag | Excellent - well suited to fast moving images with no lag  |
| Data Display Performance  | Good (must be high resolution)  | Very good due to higher resolutions available   | Good   |
| Screen Size (currently shipping)                                      | up to 37"   | up to 65"   | up to 65"  |
| Viewing Angle   | around 160° arc (no loss of contrast & saturation)  | around 160° arc (can lose contrast & saturation at wider angles but this is improving with newer models)  | around 160°+ arc (no loss of contrast & saturation)  |
| Operating Temperature   | Good  | Poor at low temperature (response times slow down)  | Good (high altitude can cause buzzing - some panels include cooling fans)                          |
| Burn-in/Image Retention   | Phosphor burn-in of static images   | Image retention of static images causes uneven display across panel   | Phosphor burn-in of static images (commercial panels offer screen management - image orbiters etc) |
| Power Consumption (all black)   | Poor  | Poor  | Good   |
| Power Consumption (all white)   | Poor  | Good  | Poor   |
| Brightness  | OK  | Good  | Excellent (more grey shades in the low brightness range)   |
| Contrast Ratio  | 1000:1 max  | 1000:1 max  | 10000:1 max  |
| Colour Reproduction   | Good  | Poor (depends on performance of colour filter & viewing angle)  | Good   |
| Colour Uniformity   | Good  | Variable (especially in corners & at edges)   | Good   |