

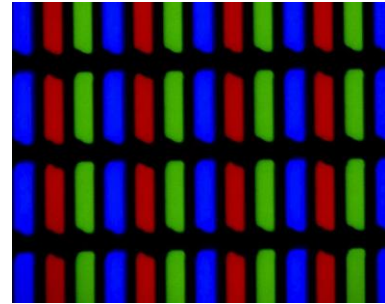
October 12, 2011

LCD and LED TV. The Leap from Plasma.

As discussed in my previous publication: [What is Plasma Anyway?](#) Plasma was described as a matrix of microscopic neon lamps. They display in red green and blue to complete the visible human spectrum.

What is LCD (Liquid Crystal Displays)?

Calculators and watches are among the recognized use for the LCD; Silver or backlit display with black characters. At rest, a liquid crystal is transparent. When energized, it becomes opaque producing a black area. LCD TV's apply this technology, varying the transparency over the scale of bright to dim to dark. The back light is a *Cold Cathode Fluorescent Lamp* (CCFL). It is a flat white lamp, as big as the screen. Each LCD pixel is made up of three "sub-shutters": red green and blue. The LCD controls how much of the backlight is transmitted through each of the three colors.



Close-up of an LCD Display with Red, Green and Blue Sub-Shutters.

Comparing LCD and Plasma Displays

Plasma displays are made of glass. The LCD's plastic screen is lighter.

The LCD consumes less energy than the plasma. Also, today's LCD has twice the life.

However, the LCD shutter cannot block the light completely. This gives grayish blacks. The plasma has a blacker black.

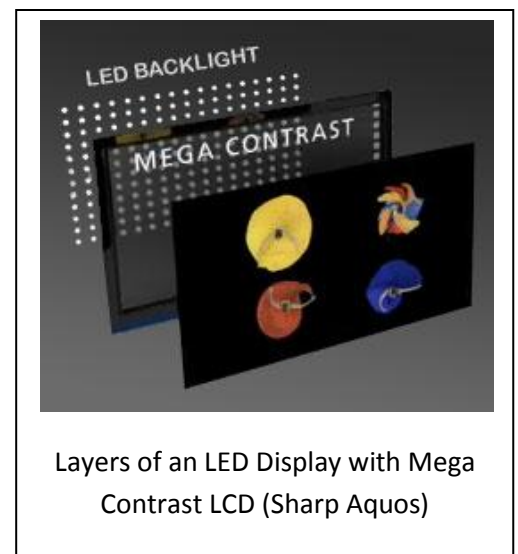
In a dark room the plasma's glass screen works best. The frosted LCD face reflects less ambient light, so it is better adapted to brighter rooms.

Enter the LED Backlight!

We have all seen LED lamps in various forms, now including some traffic lamps. They are small, bright, low power and come in a variety of colors. A LED backlight is made of a matrix of thousands of white LED's.

The LED Backlit LCD, Also Called LED Display.

So, it is still a LCD display. But it is backlit by a matrix of LED's instead of a single fluorescent lamp. Each LED's brightness can be controlled for a greater variation in display brightness, so the blacks are much blacker than the LCD.



Layers of an LED Display with Mega Contrast LCD (Sharp Aquos)

Controlling the LED's has an additional significant benefit; power. This display consumes 20% to 30% less power. Many models are Energy Star rated for power economy.

And, Although LCD's have advanced in reducing the thickness, LED are even thinner. Recent LED models are less than an inch thick.

Finally, LED displays are the lightest; a fraction of the weight of plasmas. Having mounted all types of flat screens myself, I can assure you the difference is significant.

This YouTube video from Sharp, gives a good graphical representation of the LED backlight and the improvement since CCFL: <http://www.youtube.com/watch?v=yzIG1cdrYTE> . This is not my promotion of Sharp. There are many good brands. Go to your TV dealer and chose your own preference.

Flat Screen TV's continue to improve in brightness, weight and thickness. AU Optics out of Taiwan has announced a 42" LCD that is 10mm thick (just over 3/8"). It weighs 44% less than conventional LCD's.

Best Regards,

Marc Larin, Owner

Cardinal Home Technologies, LLC

www.cardinalcabling.com

919.522.8848

