

## A Look at Plasma TV Technology vs. LCD TV Technology

A lot of people operate under the assumption that plasma and LCD are the same thing. They are actually two competing technologies that achieve similar results (crystal-clear, color-filled pictures) and come in similar packages (super-thin cases). Right now, plasma is more expensive than LCD, but that price gap is rapidly deteriorating. Plasma is also available in larger screen sizes than LCD.

A plasma display is comprised of hundreds of thousands of separate pixel cells, which allow electric pulses to energize rare, natural gases (usually xenon and neon). These pulses cause the pixels to glow and produce light. This glow illuminates the balances of red, green or blue phosphors within each cell and it displays proper color sequence from the light. Each pixel is much like a microscopic florescent light bulb. This "light bulb" gets instruction from software that is contained on an electrostatic silicon board.

LCD televisions work by controlling the amount of light that is allowed to pass through liquid-crystal-filled cells that are sandwiched between two panes of polarized glass. LCD monitors reproduce colors through subtraction: specific wavelengths from the spectrum of white light are blocked and just the right color is left. The intensity of light that passes through this liquid-crystal matrix is how an LCD television is able to display images that are so rich in color--or in gradations of color.

Generally speaking, you can expect higher contrast ratios from plasma TV technology. Contrast ratio is the measure of the blackest black compared to the whitest white. Some plasma manufacturers claim to have a 3000:1 ratio, with even the best LCD TV delivering a 1000:1 ratio. Step outside of the spec-battle though, and you'll find that even a 700:1 ratio displays blacks that are sufficient enough to please even the most discriminating viewer.

Viewing angles between the two technologies have been a big difference until just recently. New LCDs on the market are capable of delivering a horizontal and vertical viewing angle of 170°, and that's really just about as good as you could expect to use in everyday viewing situations.

LCD manufacturers claim that their displays last, on average, 60,000 to 80,000 hours. In point of fact, an LCD TV will last as long as its backlight does -- and those bulbs can actually be replaced. Since this is nothing more than light passing through a prismatic substrate, there is essentially nothing to wear out on an LCD television.

Plasma, on the other hand, utilizes slight electric currents to excite a combination of gases. This is an active phenomenon with a distinct lifetime. The phosphoric elements in plasma televisions will fade over time. The half-life of the gases within a plasma display is approximately 25,000 to 30,000 hours. At this age, the phosphors will glow half as brightly as they did when the plasma was new. It is not possible to replace these gases; the display simply continues to grow dimmer and dimmer over time.

Plasma televisions are predisposed to screen burn-in (also known as ghosting), while LCD televisions are not. A static image displayed on a plasma will begin to burn-in, or discolor the pixels displaying it, after a very short time (in as little as 15 minutes). You can attempt to "wash-out" a burn-in, but the lifespan of the plasma unit will be reduced significantly.

LCDs require much less power to operate than a plasma display, since an LCD uses fluorescent backlighting. LCD televisions require approximately half the power that plasma displays require. Plasmas are power-hungry devices, requiring a significant amount of electricity to light every individual pixel - even the dark ones.

Both plasma and LCD TVs are a great deal lighter than a traditional CRT TV. Still, a plasma will be about 20% heavier than an LCD TV of the same screen size, although both types will be of comparable thickness (less than 4 inches).

In a lot of ways that really matter, there isn't that much of a difference between the two. Both types of flat-panel TVs are thin enough to be placed just about anywhere, and produce a picture that is amazingly clear, sharp, and bright.