

Plasma vs. LCD TVs

Expert advice on which flat-panel deserves your attention and cash.

By John E. Johnson, Jr.

The electrifying battle between plasma and LCD flat-panel TVs continues to heat up. As a consumer you have a tough choice. On today's "Call for Help" I'll explain the real differences between the two so you know what you want before you go to the store.

How they work

Plasma and LCD displays create images differently. By understanding those basic differences, you'll know what to compare.

Plasma TVs apply voltage to any of more than a million tiny chambers filled with neon, xenon, krypton, or argon, or a combination of the gasses. Using a matrix of wires to "address" specific chambers, the gasses ionize into plasma that emits ultraviolet light. Light strikes red, green, or blue phosphors coated on the inside of the chambers, and a pixel emits that respective colored light.

LCD TVs work passively, shining a light behind the LCD panel. They include the same number of pixels as a plasma display, but the pixels are colored red, green, and blue. When voltage is applied to a pixel, using a matrix of wires, the pixel becomes dark and light can't show through it.

Now let's compare the two technologies by using several criteria.

1. Contrast and color saturation

Plasma TVs offer better contrast and color saturation than LCDs by design. Plasma pixels remain dark with no voltage while LCD pixels try to keep light from coming through. LCD pixels can't keep all the light from the LCD backlight from coming through. As a result, black isn't quite as black (contrast) as with a plasma TV and stray light tends to dilute color (color saturation).

2. Burn-in

When watching TV programs with bright logos in the bottom right corner, or when playing computer games that have a static image such as a dash board, the image can burn-in on the screen. When you watch something else, you can still see a faint image of the logo or game console. Sometimes this can be remedied by viewing video noise (snow) on a channel that does not have any programming, but it still can be a problem.

If you're a big gamer, consider LCD instead of plasma TVs. On the other hand, LCD screens are not as fast at changing colors when the action is quick, so you might see some image drag with high-speed gaming action.

3. Viewing angle

Image quality from a plasma TV pretty much remains the same when viewed off to the side. The image on an LCD changes dramatically, often losing contrast or brightness if you move off center. If your couch sits right in front of the TV, either type is fine. If a lot of your family members sit off to the side of the TV, select a plasma or rearrange the TV room.

4. Altitude

At high altitudes (5,000 feet), plasma TVs have to work harder as gasses in the pixel chambers increase in pressure in relation to the surrounding atmospheric pressure. As a result you'll hear a buzzing sound that drives some consumers crazy. Take the buzz factor into account if you live in an area like Denver or Santa Fe, N.M.

5. Size and cost

Large plasmas arrived on the flat-panel TV scene before LCDs. The technology for the really big ones (60" diagonal) hasn't evolved as far for LCDs, explaining why you'll see LCD TVs max out at about 40" while plasma TVs at 63" appear in electronics showrooms. It also explains why LCDs cost more than plasma TVs of the same size. Hopefully, prices will come down in a year or so as more LCD TVs are sold and the maximum panel size increases.

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