Red, Green, Blue... and Beyond

by Bill Machrone

The annual Consumer Electronics Show is a gotta-be-there event for guys like me. The big news this year was 3D TV, but frankly, I was far more impressed with another technology, one that doesn't require new content or special glasses, but enhances the quality of everything you're watching right now. The fanfare was coming from the Sharp booth.

The new Aquos HDTVs were sleek and stunning and the onscreen images were arresting. These sets had the usual red, green and blue pixels... plus yellow pixels. Or, more accurately, sub-pixels, four per pixel. I examined last year's Aquos and the new 4-Color Technology set side by side, under a microscope. Sure enough, there were yellow sub-pixels alongside the others, creating vivid, even dazzling images.

Curious, I asked for a second, closer look. I was struck all over again by the vibrant colors. Not just the yellows, but the reds, greens, and blues. The 2009 Aquos looked great, but the 4-Color Technology Aquos just smokes it.

Then came my moment of cognitive dissonance—I've been around color TVs since the beginning, and no one had ever questioned why you need more than red, green and blue. After all, you can express all colors by blending them properly, right?

Not exactly. You can express all of the colors within a range, but that range, which the engineers call gamut, is limited by the purity and depth of the primary colors. Adding another color expands the gamut and displays colors that weren't there at all or that were merely suggested rather than expressed. Or look at it this way: Sure, red plus green make yellow. But they can't make the deeply saturated yellow that you get from a dedicated pixel. The gorgeous image you see on the display is proof that there's more in the signal than your conventional HDTV could show.

The brilliant picture, I discovered, is due to a complete reengineering of the LCD panel. Sharp's UV²A technology uses a new LCD material that is sensitive to ultraviolet light. The UV precisely aligns the crystals, so they turn completely and in unison, like a precision drill team. They pass as much as 20 percent more light when they're on and are more completely black when they're off, and they switch faster from clear to dark and back again.

UV²A lays the groundwork for 4-Color Technology's 33 percent more sub-pixels and transparent transistors. A new color processor analyzes the incoming signal, adds yellow into the mix in just the right amount and creates hues that you didn't know were missing from your old HDTV. Once you see the brilliant colors and the rich blacks, you appreciate Sharp's level of commitment to video quality, including a new, purpose-built plant.

Never before have movies on TV looked more like film, with deep, literal, from-within colors, rich blacks, brilliant whites, near-infinite color gradation. With the 60- or 68-inch screens and a Blu-ray source, you'll have a truly cinematic experience. The UV²A panel gives the deepest blacks of any LCD and available AquoMotion 240 refresh syncs perfectly with film. Live HDTV? Unparalleled performance.

Once again, quality trumps gimmickry. I'm satisfied that 4-Color Technology redefines HDTV performance. And dissatisfied... it makes my old HDTV look rather sad.

sharpusa.com/AQUOS