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Real-World Home Theater

The quest for a new video display, compromises and considerations, and getting the most out of your current set.

by Wayne Garcia

When you consider that my wife and I both adore movies—and have spent a great deal of time and money building video collections on tape, laserdisc, and now DVD—it is strange to admit that for years the only thing we had to watch them on was a 13-inch NAD television. This decision was largely a matter of aesthetics. Neither of us likes the look of a TV set in our living room, so we tucked it away in the bedroom, perched on a rustic bench that served as a stand. Although we were content watching *Lawrence of Arabia* on Barbie's TV, good sound was always important, and alongside the television sat a pair of Mission bookshelf speakers, a Rotel receiver (stereo only, in those days), and players for disc and tape.

But DVD changed all that. We were so excited by the format's superior picture and sound quality that we finally decided, "Okay, now's the time to get a larger set." To be accurate I should say that *I* decided. My wife was still opposed to having a big ugly box cross the threshold of our apartment door. Besides, where would we put such a thing? For us, the living room was still out of the question, and the bedroom was too small for a significantly larger screen (not to mention surround sound). Around the same time, my friend (and now *The Perfect Vision's* Editor) Jonathan Valin



was raving about the Toshiba TW40F80, a 16:9 rear-projection TV that he had just reviewed and was urging us to move up to. "Let's at least try it," I said, "we can put it in the music listening room." (Since I'm in the biz, Toshiba graciously agreed to loan us a set before we were committed to a purchase.) Once the delivery guys left and we'd unboxed the TW40F80, I had to admit that it was pretty big. But it fit nicely in the allotted space, the sound over our high-end stereo system was thrilling, and watching DVDs—few as there were back then—on a relatively large widescreen was a revelation. A couple of days later a friend who knew of the offending object's arrival asked my wife if we were going to buy it. Her unhesitating reply was "Yes!"

That was four years ago. In that time we've enjoyed hundred of DVDs on the Toshiba. Sometimes it's just the two of us. Sometimes friends join us. And because I now write about multichannel audio equipment for *The Perfect Vision*, we've long since graduated from stereo to surround sound. But the truth is that even though the Toshiba still looks pretty darn good, it's getting long in the tooth. When it comes to things technological, four years might as well be four decades. Definitely time to upgrade, I thought.

This desire became a near-obsession after a visit to last

year's CEDIA Expo in Indianapolis. HDTV was not only everywhere, there was a special room called "The Garden of High-Definition Delights" where a variety of models were corralled side by side for direct comparison. The show floor was a vast electronics playpen where displays came in all shapes, sizes, and technologies: direct-view, RPTV, plasma, LCD, DLP, CRT—before I could make the sign of the cross, my head was spinning like Linda Blair's in *The Exorcist*.

A flat plasma panel became the first object of my desire. The newest models from the likes of Fujitsu, Pioneer, Panasonic, Runco, and Zenith are looking very good, and are without doubt the sexiest things going. And my wife would love one. But plasma still costs a small fortune, and the technology seems to be just coming of age. We could, of course, upgrade our RPTV. The latest digital versions look great, are increasingly affordable, and our history with the beast would require no changes in our room arrangement or furniture. But beasts they remain, as do the current crop of large direct-view sets. And even though I've managed to get good sound with a big acoustically reflective object (the Toshiba) between my main speakers, removing it would be better still—especially while listening in stereo, which remains vitally important to me.

These thoughts led me to fantasize about front projectors, which have the added advantages of a really large image and no glass to peer through. The main contenders are CRT (Cathode Ray Tube), LCD (Liquid Crystal Display), and DLP (Digital Light Processing), an exciting technology that seems to be hitting its stride. (For an in-depth view of the pros and cons of these devices see Pete Putman's "What You Should Know About...Video Display Technologies" in Issue 39.) CRT may not have the sex appeal of plasma or DLP, but these cumbersome analog projectors remain, in my experience, the state-of-the-art (for how much longer, only time will tell). But putting a large, heavy 8" or 9" CRT in our room would be like floating a battleship in a bathtub. As renters, there is no way we could mount one of these mothers on our ceiling, and a table-mount would eat up valuable floor space. A smaller 7" CRT like Zenith's Pro 895X might work, but LCD or DLP projectors are more practical. Sony's VPL-11HT is one LCD possibility, while DLP contenders include the cute, single-volume-Shakespeare-sized "Piano" by PLUS, Sharp's XV-9000U (reviewed by Gary Merson in Issue 40), along with models from Marantz, Yamaha, and others we've yet to see. The best of this batch use a fresh chip from Texas Instruments that significantly improves DLP's black level and resolution. I had the opportunity to view Sharp's offering in two different systems at CEDIA. The first was in Balanced Audio Technology's display where it looked terrific. The second was at Sharp's own demo, which was, for reasons I still don't understand, much less impressive. But shows are a tricky place to accurately evaluate electronic equipment, so these are impressions, not definitive experiences. In the meantime, at the January Consumer Electronics Show in Vegas, I experienced a 9" CRT projector from Ultimate Imaging that was mind-blowing (see this

Pioneer's PRO-1000 HD Plasma



issue's CES Report and Jonathan Valin's "Dream Theater" in Issue 37). Although I practically fell asleep during the boring race sequence in *The Fast and the Furious* (one of those bad movies invariably played at shows because of their "reference" image quality), I about swooned when *North by Northwest* appeared on the screen. The DVD of Hitchcock's comic masterpiece generally looks quite good, but over most displays the colors are softened to pastel shades and there are jaggies and other artifacts throughout. But here it was simply beyond belief, beyond what I imagined was possible outside of the best movie theaters. This was among the most gorgeous movie-viewing experiences I've had—and it was on video! The beauty and intensity of the Technicolor, the picture's detail, three-dimensionality, and lack of *any* artifacts, made for an exceptionally involving and rewarding experience. It also raised my own expectations to an unattainable level. Still, knowing what's possible is a valuable thing.

So, what to do? Frankly, I don't yet have an answer. And there really isn't just one answer but many, each with its own set of challenges and compromises. As this column evolves I'll take you along on my search for not just a new video display, but for the "best" display possible within my less than perfect setting, i.e., an urban apartment with limited space and one that, because I rent, cannot be customized by hammer and saw. It's not going to be easy. Already my wife and I have rearranged our current room, only to put it back the way it was (viewing along the short wall), only again to start thinking of trying the long wall again with a different arrangement, and possibly changing the furniture.

For now, however, let me tell why the challenge recently became even tougher—and believe it or not it has to do with that four-year old Toshiba RPTV that I mentioned earlier.

Right before Christmas my friend Nick called, waxing ecstatic about the new Sony KDP-57XBR2 57" high-definition set a friend of his had just purchased. Although its picture looked ordinary straight from the box, Nick had witnessed the transformation of this TV into a first-rate display device. You see, no TV comes to us factory-set for optimal performance (as our video reviewers have constantly pointed out). That would require hours of work, something that no manufacturer can afford. (Moreover, proper tweaking depends on your line voltage and other factors that a manufacturer simply can't predict or take into consideration.) Most sets are delivered "hot," with adjustments like brightness, contrast and color fixed "showroom" high. Fine, I had known that for years. And with aid of the set-up disc *Video Essentials* had tweaked my Toshiba to look much better than the factory settings. Good, I thought, that's done. But

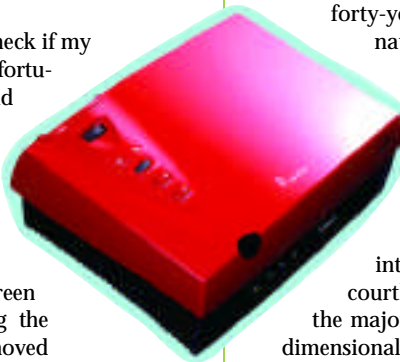
it's not, and not by a long shot.

What Nick had witnessed was a labor-intensive video calibration by a highly qualified individual named Robert Busch (of Busch Home Theater in Santa Rosa, CA, <http://vinescape.com/bht/bht.htm>), a charter member of the Imaging Science Foundation. Details about ISF (including a list of licensed members) can be found on the company Web site (www.imagingscience.com), but in a nutshell the group's goals are to define the parameters for accurate video display, and to teach its licensees the design and installation tradeoffs of different display devices—how to calibrate them for the most accurate reproduction, the effects of room environment on picture quality, and the effects of external signal processing through scalars, line doublers, and quadruplers.

"Man, you're crazy if you don't have your Toshiba calibrated," Nick told me, "we've been fooling ourselves all these years. The difference this guy makes is jaw-dropping."

A few weeks later Robert Busch came to work his magic. Except there's nothing magical about what he does—it's the result that's magical.

The first thing Robert did was to check if my Toshiba was in proper working order; fortunately, it was. Next, using the *AVIA* and *Video Essentials* calibration DVDs, Robert set each of the TV's levels (brightness—more accurately described as black level—contrast, color, and tint) to their linear operating ranges. "Now it's time to get serious," Robert said. He removed the screen and so-called "glare-shield," exposing the lenses, mirror, and inner cavity. He removed and inspected each lens, looking for scratches, pits, dust and other particles of debris. This is also a good time to ensure that no lens has factory defects—it's rare, but according to Robert about five percent of the new lenses he inspects need replacement, while 60% are either not properly seated in their mounts or have collected debris. He also inspects the mirror and screen. Robert then lined the cavity with fire-retardant, deep black velvet cloth that absorbs any stray light thrown by the lenses. He also removed a pair of aluminum flanges flanking the lenses and spray-painted them black for the same reason. Once the interior work is complete, the screen is replaced. Ideally, and most of the new rear-projection sets allow for this, the glare-shield will be removed, and because we're no longer looking through glass, the result is a much more film-like picture. Unfortunately, my Toshiba's Plexiglas shield is epoxied into place and, short of a swift act of violence or hours of surgery, not removable. Next, Robert defeated the set's scan velocity modulation, a circuit that manufacturers use to add a false sense of detail to their pictures. "This is crap," said Robert, "all it does is create artificial edge-enhancement by adding black lines around images." He mechanically focused the lenses to make them as sharp as possible, before moving on to electrical focus. (The best displays also include electromagnetic



PLUS' Piano—
A \$3000 DLP
projector


focus and beam-shaping magnets.) He underscanned the image, bringing it in both vertically and horizontally to maximize the available picture area, then set geometry and convergence (the exact alignment of the red, green, and blue lenses) for each aspect ratio. Finally, he determined if the set's video decoding circuitry was functioning properly. Not all models allow for this procedure, which properly trained technical types can access and adjust.

As involved as this all sounds, let me underline that this is a highly simplified description of the process. Needless to say it requires not only a highly-trained technician, but one who also has experience with a wide range of video displays as well as the proper (and expensive) test equipment.

About the time that Robert was wrapping up, my wife walked through the door. Although the inclination was to put on a reference quality DVD in order to experience our turbo-charged Toshiba, the night before we had watched Robert Mitchum's Max Cady terrorize his way through *Cape Fear*: "Hello, counselor. Remember me?" Since it was the last thing we'd seen on the "old" set we decided this forty-year old black-and-white transfer was the natural choice. It didn't take longer than the few second shot of Universal's revolving globe for us both to begin exclaiming: "Look at the depth of that black!" my wife said; "And the grays are actually gray, not tinted blue," was my first reaction. Once the camera followed Mitchum across the street, past a group of dowagers, into the shadow of a sycamore tree, and up the courthouse steps, we were both blathering about the major improvements in the film's sense of three-dimensionality, detail, rich palette of grays, and sheer overall beauty.

Nick had been right, the difference was huge; and it made me feel like a chump for what I'd missed all these years. The other thing is that, two months later, every time we watch a DVD that we'd seen before the improvements still leave us amazed. And with a disc of true reference quality—from the Superbit version of *The Fifth Element* to the glorious black-and-white of *Citizen Kane*—the old Toshiba, within its limits, looks very fine indeed. The cost of this service varies depending on the display (generally \$300 to \$700), but anyone who is even semi-serious about home theater should find a local ISF-certified technician and call him today.

Then why upgrade? Well, because I know it can be even better with a modern set that accepts progressive-scan outputs from my Sony DVD player. Because these new technologies intrigue me. And because—lucky me—it's part of my job.

P.S. While wrapping this column I did a stupid thing: accidentally hit the RESET button on the Toshiba's remote. If anything in this world should be labeled as "evil," it is a reset button, which restores a TV to its factory settings. Fortunately, I was able to adjust the basics back to where they should be. Robert only scolded me a little, and we set an appointment for him to revisit, and work his magic again. 



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