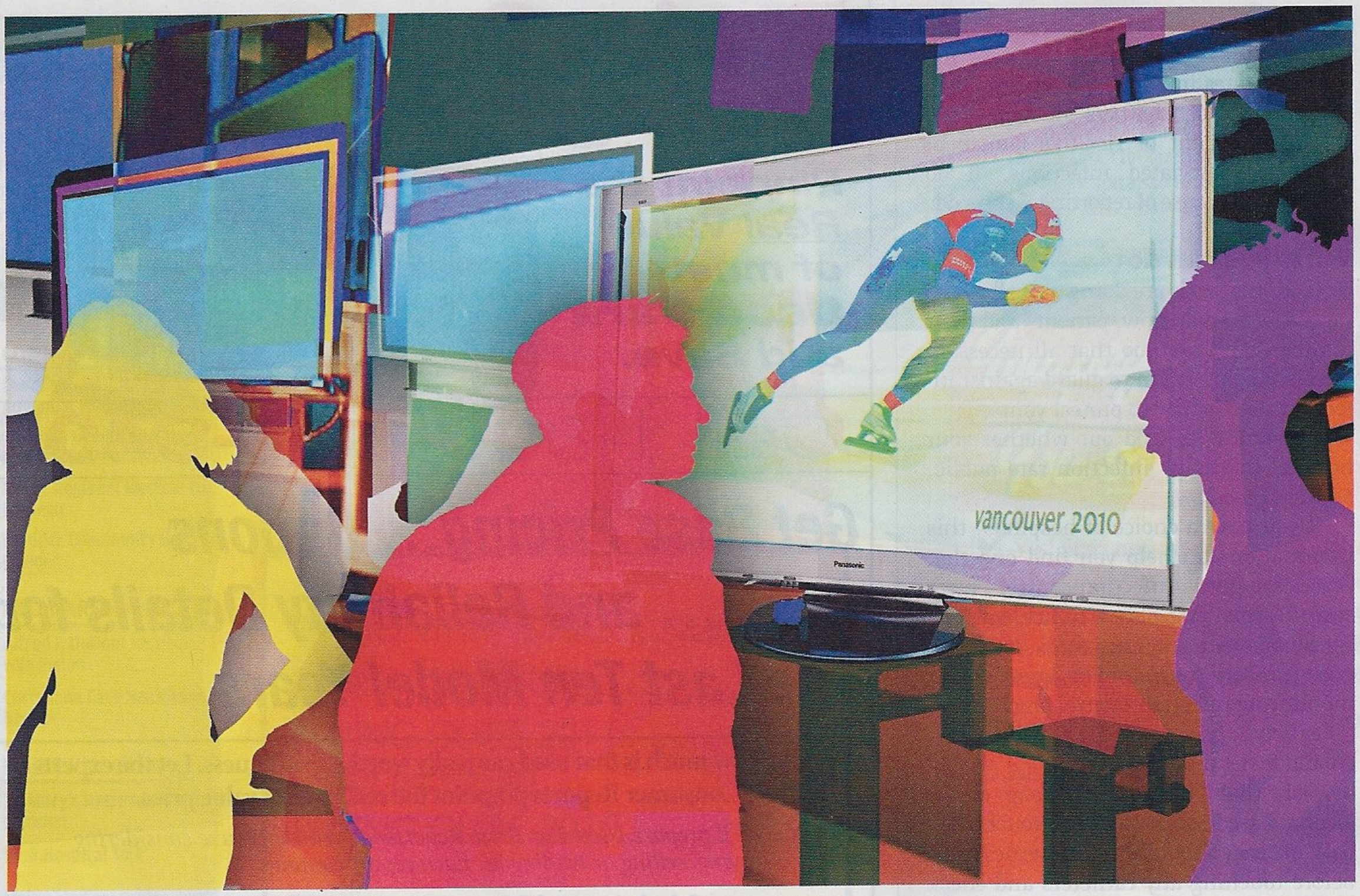


Best TVs for the buck

See which features are worth paying for and which you can do without

Inside

IT MIGHT BE hard to believe, but TV prices are still falling, thanks to Super Bowl and Winter Olympics promotions and clearance sales on '09 sets. Expect to see prices for 46- to 50-inch TVs as low as $600, 40- to 42-inch sets for $500, and 26- to 32-inchers starting at $300.

There are many pricier TVs in stores, and salespeople might tout their "superior" features. Based on our tests of 130-plus TVs, the most sets we've ever rated, we'll help you decide whether the most-hyped features and technologies are worth the price. (3D TV could be on your list of considerations soon. See the facing page.)

120Hz and 240Hz: Less blur

Ads make a big deal of 120Hz and 240Hz technologies, which promise to reduce blur and the loss of detail that occurs when LCDs display fast-moving images. 120Hz technology doubles an LCD TV's usual 60Hz frame rate, and 240Hz quadruples it. Another approach, which we call quasi-240Hz, combines a 120Hz frame rate with a scanning backlight that flashes on and off to create a 240Hz-like effect. (Some TVs are set to 120 or 240Hz out of the box, but on others you must turn that feature on.)

You usually pay about $200 to $400 more for a set with 240Hz or quasi-240Hz technology, in part because those sets tend to have other step-up features, too. 120Hz is available even on modestly priced sets such as the 55-inch Vizio VF550M, $1,400.

When we tested anti-blur technologies, the results varied. On some sets with true 240Hz, we saw almost no blur. Other TVs with quasi-240Hz and 120Hz frame rates had less blur than 60Hz sets, which showed the most noticeable deterioration. But some TVs with higher frame rates did

ILLUSTRATIONS BY EVA TATCHEVA

no better with blur than 60Hz models.

But even when blur reduction works well, it might not make much difference in real-world viewing. Our test videos with steadily moving images and patterns are specially designed to reveal motion blur. Blur is much more difficult to see in regular TV fare, in which motion is fleeting. Keen-eyed viewers might notice softening of textures or edges in sports, action movies, and video games, or in a moving text ticker. But they might see little if any difference between the best and blurriest sets in sitcoms, dramas, and news shows.

Another issue: 120Hz or 240Hz is often coupled with a feature called motion smoothing. It's designed to reduce the jerkiness, or "judder," that occurs when film-based content is displayed on a TV—say, when a camera slowly pans across a scene. Eliminating judder can make movies look like they were shot with a video camera, an effect you might not like. On some TVs, you can control motion smoothing and the frame rate separately, but on others they're tied together.

Bottom line. A 60Hz set should satisfy most casual viewers, but it's worth looking at 120Hz TVs now that the feature is available on lower-priced sets. Don't buy a pricey set just to get 240Hz unless you're very critical or the TV has other features that you think justify the price.

LED backlights on LCD TVs

Contrary to marketing hype, LEDs aren't a new type of TV—they're simply LCD TVs using LED backlights instead of fluorescent lamps. Such sets usually cost a few hundred dollars more than conventionally backlit LCD sets. How much more depends on which of two technologies they use.

The priciest models tend to be those with full-array LED backlights and a feature called local dimming. The LEDs are spread across the entire back panel and divided into zones that are controlled independently. Segments of the backlight can be dimmed behind a dark scene to enhance black levels while remaining bright in other areas.

We've found that LEDs with local dimming can enhance black levels and contrast to varying degrees. We saw distinct improvement on a few sets, such as the 46-inch Samsung UN46B8500, $2,740, but less effective implementations of local dimming can create undesirable effects such as halos around objects or odd illumination of dark areas. You can turn off local dimming, but then you'll lose any improvement in black levels.

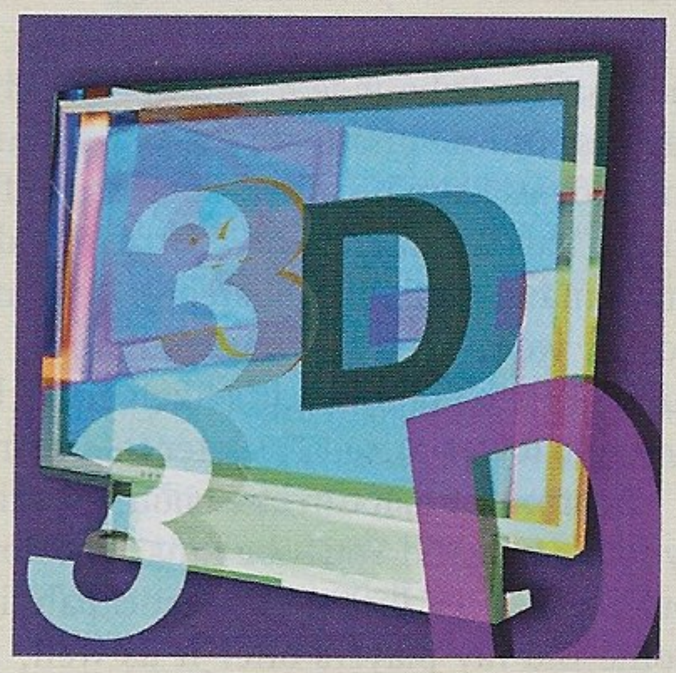
LCD TVs with "edge" LED backlights have LEDs around the perimeter of the screen. Special diffusers spread light uniformly across the panel. We haven't seen the same black-level improvements as with the better full-array models, but edge LEDs enable the TV to be stylishly thin, approaching an inch in depth.

Both types of LED backlighting can cut electric bills by a few dollars a month compared with an LCD that has the usual CCFL (cold-cathode fluorescent lamp) backlight.

Bottom line. The best LCDs with full-array LEDs and local dimming have done very well in our tests, but so have some conventionally backlit LCD TVs that cost far less. Consider an LED set if you don't mind paying for the latest technology or if you want a superslim set with edge LEDs.

Continued on next page

3D TV: Has its time finally come?



Even before James Cameron's movie "Avatar" became a three-dimensional juggernaut, it was clear that 3D would be a major buzzword for 2010. The concept of 3D-ready TVs isn't new; about a year ago we looked at 3D-capable rear-projection DLP TVs from Samsung and Mitsubishi, with less-than-satisfying results. Now several major brands, including LG Electronics, Panasonic, Samsung, and Sony, are expected to ship 3D-ready flat-panel TVs this year, perhaps by summer. We believe the new 3D TVs on the horizon will provide a much better experience for several reasons.

Very good quality, more content
The demos we've seen have been impressive, with very good three-dimensional depth and resolution, especially on animated content.

And 3D content is finally coming. The success of theatrical 3D releases such as "Avatar" (20th Century Fox) and "Up" (Pixar) has led more studios to produce and release 3D films, so there will be a steady stream of 3D titles that can jump from theater to home.

In addition, the industry recently finalized the specifications for the 3D Blu-ray players needed to play such videos. We've also heard that DirecTV and ESPN will begin offering 3D fare this year.

But one big drawback to 3D isn't going away: You still need to wear glasses to enjoy the 3D effect with most of the new 3D sets. They're not the inexpensive paper shades given out at movie theaters. They're shutter-style models that blink on and off rapidly so that each eye sees its own, slightly different image in full 1080p. Many 3D-capable LCD and plasma sets will come with one or two pairs, but you'll have to buy extras, which could be pricey.

Bottom line. We still don't know how 3D TVs will be priced, but we wouldn't be surprised if they were very expensive at first. Unless you're an early adopter willing to pay to be among the first to experience 3D at home, we'd suggest holding off. Prices for 3D-capable TVs and Blu-ray players are sure to come down over time, and there will be a bigger library of 3D titles available the longer you wait. It's likely that 3D broadcasts will begin once enough consumers have purchased 3D sets for their homes.

CLOSE UP

Which TV type?

LCD

Pros Wider range of sizes and greater choice of 1080p sets in all sizes than with plasmas. Most are brighter than plasmas and hold contrast better in bright rooms. Some have nonreflective screens. No risk of image burn-in.

Cons With most, picture degrades if you watch the TV from an angle. Few match plasmas for detail in deepest blacks. Most blur rapidly moving images. Largest screens pricier than comparable plasma sets.

Plasma

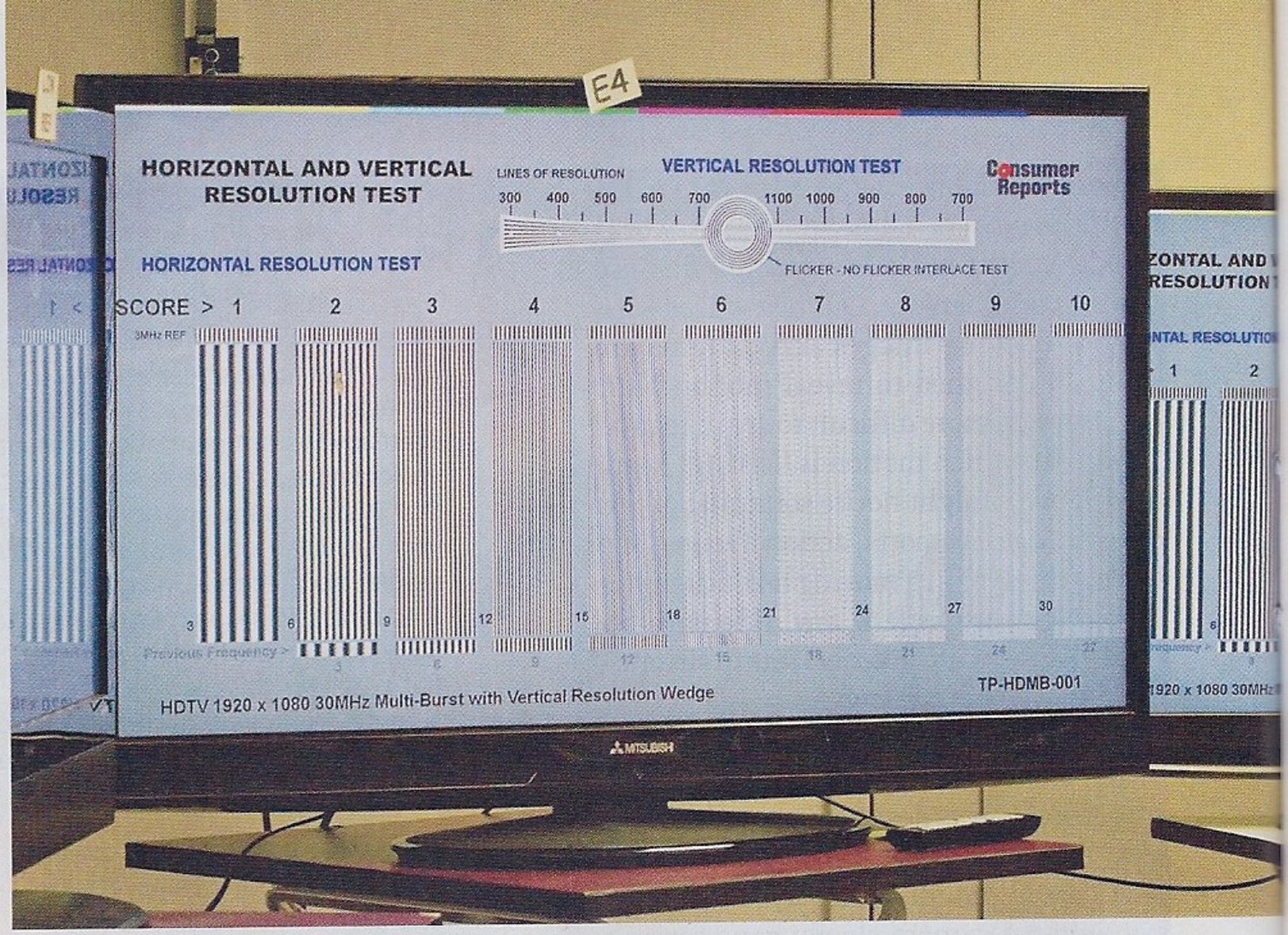
Pros Virtually unlimited viewing angle. Consistently deeper blacks and better contrast in dark scenes. No motion blur.

Cons Most not as bright as LCD sets. Shiny screens show reflections in bright rooms. High-contrast images might leave a temporary impression on screen.

Internet-enabled TVs

Some new LCD and plasma TVs can access the Internet via your broadband connection. By using the TV remote, you can enjoy a YouTube video, news or weather reports, online photo albums, or streaming movies from providers such as Netflix (if you have a subscription), Amazon Video on Demand, and Blockbuster on Demand. So far, we've seen this capability only on higher-priced sets, but it's likely to trickle down to lower-priced TVs later this year.

Bottom line. It can be a boon, especially for movie and YouTube fans. But don't buy a pricey TV just to get that capability. Some Blu-ray players offer it as well, including models that cost between $130 and $200. See "TV Meets Web," on page 30.



IT'S ALL IN THE DETAILS Our experts use test patterns with progressively finer lines to see how well TVs can resolve the detail in high-def images. The best 1080p sets hold up to level 10, at far right.

1080p or 720p

1080p resolution, called full HD, is now very common, but some 50-inch and smaller TVs still have 720p resolution. A 1080p set has the potential to display finer detail than a 720p TV because the screen has more pixels—the elements making up an image. It doesn't necessarily have better overall picture quality, though salespeople might suggest that. Our tests show that the best 720p sets can come close to 1080p sets for picture quality.

The price premium for 1080p has shrunk but still runs $100 to $200 or so. When you're watching top-quality high-def sources such as a Blu-ray disc on a larger screen, say a 47- or 50-inch set, you'll notice the benefits more than you would on a 37-inch TV. You might see subtle improvements on smaller sets, especially up close.

On a small TV, 720p is all you need for regular viewing. But if you use the set as a computer display, 1080p will let you see more content on-screen with greater clarity and finer detail on text and graphics.

Bottom line. If price isn't an issue, buy a 1080p set. For top value, get 720p.

Screen size

All things being equal, bigger TVs cost more than smaller ones, so you might be tempted to go small to keep costs down. Don't. We believe most consumers would be happiest with at least a 40- to 42-inch set for a main TV viewed regularly from at least 5 to 7 feet away, and many would prefer a 46- to 50-inch set for distances of at least 8 to 10 feet. For a large space such as a great room and viewing distances of more than 10 feet, a 55-inch set is appropriate.

Those sizes might sound huge, but HD picture quality is good enough to be viewed on a much larger screen than you had in the past, and slim, flat-panel TVs aren't as overwhelming as a bulky picture-tube set. Also, you can't compare the screen size of an older, squarish (4:3) TV to a wide-screen (16:9) set. If you have a 27-inch tube set, for instance, you might think a 32-inch wide-screen will give you a visibly bigger picture. It won't. You'd need at least a 37-inch set to see a noticeable difference in size.

6 easy steps to high-definition TV programming

When you plug in your new HDTV, everything won't magically turn into high-definition. Here's what to do:

1. Get an HD-capable receiver. Check the receiver's display settings menu and make sure it's set to output 1080i.

2. Order HD service. Not all digital programming is high-def; some is still standard-def. You must tell the service provider that you want high-def, and in some cases, pay for that tier of programming. (A cable connected directly to your HDTV might get you HD for the major broadcast channels, without a box and HD service, thanks to your TV's QAM tuner. You can also get free off-air HD with a good antenna in many areas.)

3. Use the right connectors. Connect the box to your TV's component-video or HDMI input. Other inputs can't provide HD. Use HDMI if possible. It carries audio and video on one cable, versus five for component-video and an audio pair. You must use HDMI to transmit 1080p and upconverted DVD video from Blu-ray players.

4. Tune in an HD channel. The HD version of a channel has a different number from its standard-def counterpart and usually has the letters HD in the listing.

5. Choose the best settings. Most new TVs will ask you to choose "home" or "store display" settings when you first power up. Go with "home." Store settings usually look garish in home lighting. Then press the menu button on the remote to access the video or picture menu, which lists various picture modes. Cinema, Pro, or Standard (names vary by brand) is usually a much better choice than Vivid or Dynamic. As you switch modes, settings for brightness, color, sharpness, and other attributes change. See which you prefer. Also, set the color temperature to "Warm" for the most cinematic look.

6. Fine-tune the picture. To adjust settings individually, choose the Custom or User mode. Freeze on a DVD or DVR image with people and a mix of dark and light areas. Adjust brightness and contrast, then color. A good practice is to set attributes to a middle or neutral position and adjust up or down until the image looks realistic. Generally, high settings for color and brightness look unnatural. It's usually best to turn off noise reduction and set sharpness at a minimum so that details don't look harsh and overly enhanced. After fine-tuning, detail in dark and bright areas should be visible, and colors (especially skin tones) should look lifelike.

PHOTOGRAPH BY MICHAEL SMITH

Bottom line. For the best experience now and in years to come, buy the biggest screen your budget and space allow. That's a smarter buy than a smaller TV with pricey features that you'll rarely use.

Energy-saving features

Manufacturers are rolling out new features designed to reduce power consumption, in part to prepare for Energy Star 4.0, which takes effect in May. That will require TVs to use about 40 percent less power than current sets. Power consumption has already dropped over the past few years, most notably for plasma sets, which now use about the same amount of energy as LCD TVs. That's partly because of the development of more efficient panel designs, such as Panasonic's NeoPDP displays.

In LCD TVs, LED backlights and new hot-cathode fluorescent lamps (HCFLs, which are used in Sony's VE5-series TVs) can cut energy use significantly. It's not clear whether other "eco" features will help as much. Energy-saver modes on many LCD sets aggressively lower the backlight—which you can do manually via the menu—but often dim the screen too much. Sensors that automatically adjust a TV's brightness based on ambient light could actually increase power draw in a sunny space because they'll crank the backlight up to the max. Motion detectors will shut off the backlight or the power if there's no movement in a room, which can be annoying if you're sitting still.

Worth the money: bigger screens, 1080p.

Bottom line. It doesn't appear that energy-saving features will cut utility bills much, but you might want to cut power use for environmental reasons. Check energy costs for specific TVs in our Ratings.

High-priced HDMI cables

Retailers will try to talk you into spending $50 or more for an HDMI cable to use with your new HDTV. Don't bite. Our advice has long been to buy decent-quality cables with sturdy connectors (such as those our experts use with their own home TVs); a 6-foot HDMI cable should cost $10 or so. Even so-called high-speed cables designed for 1080p throughput shouldn't cost more than $20 for a 3- to 6-foot cable.

Bottom line. If you can't find low-priced HDMI cables at your local store, look online at sites such as Amazon.com.

FIRST LOOK

Front projectors for a grand

For the ultimate big screen, you can't beat a front projector paired with a screen stretching 100-plus inches diagonally, about twice the size of most plasma and LCD TVs. With some 1080p projectors now selling for $1,000 or less—a fraction of what most cost just a year or two ago—and screens and sound systems available for several hundred dollars each, a top-notch setup can actually cost you less than you'd spend on the largest flat-screen TV.

Bang for the buck

We asked our resident TV experts, led by engineer Claudio Ciacci (who has enjoyed a front projector at home for more than 10 years), to check out two of the first $1,000 1080p projectors to hit the market: the Optoma HD20 and Vivitek H1080. Both delivered a lot of bang for the buck.

The Optoma had very good to excellent HD picture quality, with excellent detail and satisfying brightness, color, and contrast. Minor flaws included jagged edges in film mode (when playing 1080i film-based content, but not 1080p) and less than ideal black levels. But it's the best under-$1,000 projector we've seen, rivaling models that cost three times as much.

The Vivitek did respectably, with very good HD picture quality, but it didn't quite match the Optoma for overall brightness, color, contrast, and resolution. Like the Optoma, its black levels were good, not great. On the plus side, it was quieter, with better connectivity and accessories.

What a higher price gets you

How do these low-priced projectors stack up to a $2,000-to-$3,000 model? The best of the pricier units offer excellent picture quality, with brighter images, stronger contrast, and deeper black levels. Most have a better zoom lens, allowing more flexibility in where you can place the projector, and a horizontal and vertical lens shift that lets you center the image on the screen without using keystone correction. (That "squares up" an image projected from an off angle but can reduce resolution.) Many also have an auto iris control to improve black levels. Still, it's hard to beat these projectors, especially the Optoma, for value, and they're smaller, lighter, and more portable than the big boys.

The Optoma and Vivitek are single-chip DLP projectors, so they're susceptible to the so-called rainbow effect—a flash of color some viewers notice mainly when moving their eyes across bright objects on a dark background. It isn't obvious to everyone, but once noticed, it can be annoying. Our tester saw it somewhat on the Optoma; on the Vivitek, it was very noticeable and distracting in some scenes. Some expensive DLP projectors use three chips, as do LCoS and LCD models, none of which produce rainbows.

Not ideal for everyday viewing

To enjoy the best picture quality from a projector, you need a dark room. Any light that falls on the screen reduces contrast and washes out the picture. Thus a projector is more practical for evening movie watching under controlled lighting than for everyday viewing.

You can vary picture size by moving the projector closer to the screen or farther back, and adjusting the zoom and focus control. As you move the projector farther from the screen, the image gets larger but dimmer. We've found an image of about 110 inches to be the sweet spot for impact and brightness for projectors we've tested. You would place the Optoma or Vivitek 12 to 15 feet away to fill the screen, then sit about 14 feet away (a bit closer with the best HD content, such as a Blu-ray disc) for the best viewing. With a smaller projected image you can sit closer.

Projectors don't have TV tuners and most have no speakers (the Vivitek has a small speaker for monitoring audio). Expect to replace a projector's bulb every 2,000 to 3,000 hours, for about $350.

SCREEN STAR
The Optoma HD20 impressed our experts.

LCD TV overview

Most sets in the Ratings have excellent or very good picture quality, so there are many fine choices. The recommended models and CR Best Buys are mainstream values, but you might want to consider high-scoring sets that were not recommended only because of their relative cost. Their high prices usually get you features such as 240Hz technology, LED backlighting, or a slim design, which you might be willing to pay for. (Some higher-priced TVs that were recommended previously are not called out here but are still worth buying if the price is right. Prices were accurate as we went to press but may have changed since.)

Models with 120Hz or 240Hz technology are noted. Those combining a 120Hz refresh rate with a scanning backlight are listed as "240." Several sets use LED backlights instead of fluorescents. The type of LED (full-array or edge-lit) is listed.

Screen size is indicated by two digits in a model name. For example, 55LH90 is 55 inches; 32XBR9 is 32 inches. Models within the same series often perform comparably, so if we recommend a 40-inch set, for instance, and you want another size, see if there's one within the same series.

✔ CR Best Buy

These recommended models offer the best combination of performance and price.

✔ Recommended

These are models that stand out in our tests for the reasons noted.

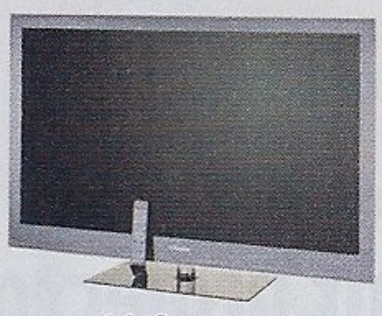
52- and 55-inch sets:

A1 LG $2,500
A3 Toshiba $2,000
A4 Samsung $1,950
A5 Toshiba $1,400 **CR Best Buy**
A8 Sony $1,700
A10 Vizio $1,400 **CR Best Buy**

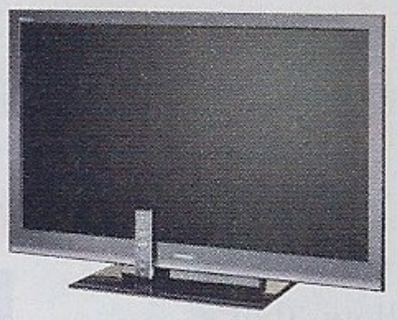
All of these 1080p models have excellent HD picture quality and a frame rate higher than 60Hz. **A1,** an LED-backlit 55-inch model, also has very good sound and a fairly wide viewing angle, hence its high price. Among the other 55-inchers, **A3** and **A10** have a fairly wide viewing angle. Among the 52-inch sets, **A4** has access to online content, including streaming movies. But its viewing angle is rather narrow, making it a less-desirable choice for off-angle viewing. **A5** is low-priced for the size. **A8** is an "eco" model that uses less energy than others in this group.

46- and 47-inch sets:

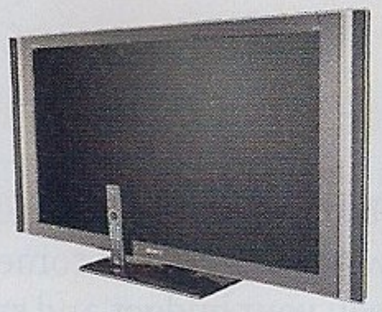
B1 Sony $2,000
B2 Samsung $2,030
B3 LG $1,450



A4 Samsung



A5 Toshiba



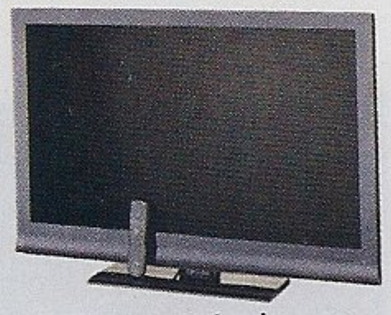
B1 Sony

Ratings LCD TVs

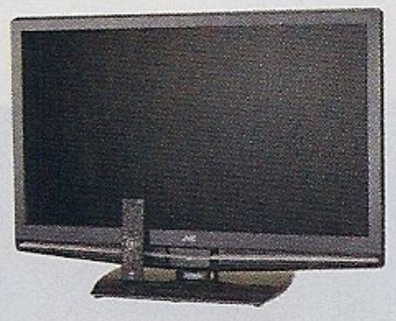
In performance order, within types. (Types designated A, B, etc.)

	Rank	Brand & model	Price	Overall score (0 P | F | G | VG | E 100)	Test results: Picture quality – High definition	Standard definition	Viewing angle	Sound quality	Ease of use: Remote	Menu	Features: Highest frame rate	LED backlight	Internet-enabled	HD-capable inputs: HDMI	Component-video	Energy cost (per yr.)
A	**52- AND 55-INCH** All tested sets have 1080p resolution.															
✔	1	**LG** 55LH90	$2,500	77	●	◒	◒	◒	●	◒	"240"	Full		4	2	$58
	2	**Sony** Bravia KDL-52XBR10	4,000	76	●	●	○	○	●	◒	240	Edge	•	4	2	45
✔	3	**Toshiba** Regza 55ZV650U	2,000	76	●	●	◒	○	○	◒	"240"			4	2	58
✔	4	**Samsung** LN52B750	1,950	74	●	●	◓	○	●	●	240		•	4	2	53
✔	5	**Toshiba** Regza Cinema Series 52XV648U	1,400	72	●	●	○	○	○	◒	120			3	2	67
	6	**Mitsubishi** Unisen Diamond LT-52249	3,100	71	◒	◒	○	◒	◒	○	"240"		•	4	3	52
	7	**Sony** Bravia KDL-52XBR9	2,010	71	◒	◒	◓	◒	●	◒	240		•	4	2	79
✔	8	**Sony** Bravia KDL-52VE5	1,700	71	●	●	○	○	○	◒	120			4	2	42
	9	**Toshiba** Regza Cinema Series 55SV670U	2,300	69	◒	●	○	○	○	◒	"240"	Full		4	2	73
✔	10	**Vizio** VF550M	1,400	67	●	◒	◒	○	○	◒	120			5	2	68
	11	**LG** 55LH40	1,800	67	◒	◒	◒	○	○	◒	120			4	2	71
	12	**Sharp** Aquos LC-52SB57UN	1,500	67	●	●	◓	○	○	◒	120			4	2	55
	13	**Sharp** Aquos LED LC-52LE700UN	2,150	66	●	◒	◓	◓	◒	◒	120	Full	•	4	2	33
	14	**Sharp** Aquos LC-52E77UN	1,600	62	◒	◒	◓	◓	◒	◒	120			5	2	53
	15	**Sanyo** DP52449	1,150	58	◒	◒	◓	◓	●	◓	120			3	2	72
B	**46- AND 47-INCH** All tested sets have 1080p resolution.															
✔	1	**Sony** Bravia KDL-46XBR8	2,000	77	●	●	○	◒	●	○	120	Full	•	4	2	47
✔	2	**Samsung** UN46B7000	2,030	77	●	●	○	○	●	●	120	Edge	•	4	1	35
✔	3	**LG** 47SL80	1,450	76	●	◒	◒	○	●	◒	"240"			4	2	50
	4	**LG** 47LH85	1,800	76	●	◒	◒	○	●	◒	120			5*	2	59
	5	**Samsung** UN46B8500	2,740	75	●	●	○	○	●	●	240	Full	•	4	1	39
	6	**Samsung** UN46B6000	1,750	74	●	◒	○	○	●	●	120	Edge	•	4	1	35
	7	**JVC** LT-46P300	1,120	72	◒	◒	◒	○	◒	◒	60			3	2	47
	8	**Toshiba** Regza 46SV670U	2,000	72	●	●	○	○	○	◒	"240"	Full		4	2	57
✔	9	**Toshiba** Regza 46XV645U	1,000	71	●	●	○	○	○	◒	120			3	2	56
	10	**Samsung** LN46B650	1,350	71	◒	◒	○	○	●	●	120		•	4	2	49
✔	11	**Sony** Bravia KDL-46V5100	1,200	70	●	◒	○	○	○	◒	120			4	2	61
	12	**Sony** Bravia KDL-46W5100	1,330	70	●	◒	○	○	○	◒	120		•	4	2	55
	13	**JVC** LT-46J300	1,100	69	●	◒	○	○	○	◒	60			3	2	44
	14	**Sony** Bravia KDL-46Z5100	1,690	68	◒	◒	◓	○	●	◒	240		•	4	2	55
	15	**Samsung** UN46B8000	2,300	68	◒	●	◓	◓	●	●	240	Edge	•	4	1	39
	16	**Mitsubishi** Unisen LT-46153	2,100	67	●	◒	○	○	◓	○	120			4	3	54
	17	**Sharp** Aquos LC-46SB57UN	1,300	67	●	●	◓	○	○	◒	120			4	2	46
	18	**Philips** 47PFL5704D	1,050	66	◒	◒	◒	○	○	○	120			4	2	89
	19	**LG** 47LH55	1,600	66	◒	◒	◒	◒	○	◒	"240"			4	2	51

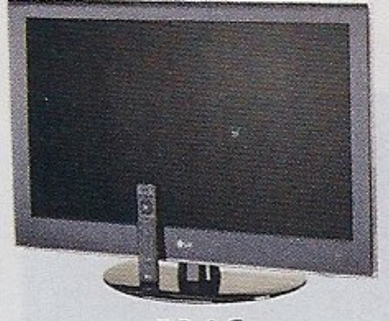
*Four HDMI inputs are on separate receiver; one is on TV.



C5 Insignia



C10 JVC



D3 LG

● Excellent ◓ Very good ○ Good ◒ Fair ● Poor

Recommendation	Rank	Brand & model	Price	Overall score (0 P | F | G | VG | E 100)	Test results: Picture quality: High definition	Picture quality: Standard definition	Picture quality: Viewing angle	Picture quality: Sound quality	Ease of use: Remote	Ease of use: Menu	Features: Highest frame rate	Features: LED backlight	Features: Internet-enabled	HD-capable inputs: HDMI	HD-capable inputs: Component-video	Energy cost (per yr.)
B		**46- AND 47-INCH** continued														
	20	**Sony** Bravia KDL-46XBR9	$1,760	65	◓	◓	◒	◓	○	◓	240		•	4	2	$56
	21	**RCA** L46FHD37R	1,050	64	◓	◒	○	○	○	○	60			3	2	78
	22	**Philips** 47PFL6704D	1,200	64	◒	◒	◒	○	○	○	120			4	2	93
C		**40- AND 42-INCH** All tested sets have 1080p resolution.														
	1	**Samsung** UN40B7000	1,600	75	◒	●	○	○	●	◓	120	Edge	•	4	1	30
✔	2	**LG** 42LH90	1,400	74	◓	◒	◒	○	◓	◓	"240"	Full		4	2	36
✔	3	**Samsung** LN40B650	1,200	74	●	◓	○	○	●	◓	120		•	4	2	42
	4	**Toshiba** Regza 42ZV650U	1,000	73	◒	◒	◒	○	○	◒	"240"			4	2	41
✔	5	**Insignia** Advanced Series NS-L42X-10A	750	73	◒	◒	○	○	●	●	120			5	2	39
✔	6	**Hitachi** UltraVision L42S503	850	72	●	●	○	○	◓	◓	120			4	2	37
	7	**Samsung** LN40B750	1,300	72	●	◓	○	○	●	●	240		•	4	2	38
	8	**Samsung** UN40B6000	1,400	72	●	●	○	◒	●	●	120	Edge	•	4	1	32
✔	9	**Toshiba** Regza 40XV645U	800	71	●	●	○	○	○	◓	120			3	2	45
✔	10	**JVC** LT-42P300	860	71	◒	◒	◒	◒	◒	◒	60			3	2	41
✔	11	**Insignia** NS-L42Q-10A	650	69	●	●	○	○	○	◓	60			4	2	33
✔	12	**LG** 42LF11	700	69	●	◓	◒	○	○	◓	60			3	1	37
	13	**AOC** L42H961	650	68	●	●	○	○	○	◓	60			4	2	33
	14	**Sharp** Aquos LED LC-40LE700UN	1,200	68	●	●	◒	◒	◓	◓	120	Full	•	4	2	23
	15	**Sony** Bravia KDL-40VE5	980	68	●	●	○	◒	○	◓	120			4	2	32
	16	**Westinghouse** TX-42F970Z	700	68	◓	◒	○	○	○	◓	120			4	2	40
	17	**LG** 42LH40	800	67	◒	◒	◒	◒	○	◓	120			4	2	39
✔	18	**Sanyo** DP42849	630	67	◒	◒	◒	○	◓	◒	60			3	2	44
	19	**Sony** Bravia KLV-40ZX1M	2,500	67	●	●	◒	◒	○	◓	120	Edge		1	0	36
	20	**Sharp** Aquos LC-40E67UN	850	66	◒	◒	○	○	◓	◓	60			4	2	40
	21	**LG** 42LH50	1,000	66	◒	◒	◒	○	○	◓	120		•	4	2	41
	22	**Philips** 42PFL6704D	940	64	◒	◒	◒	○	○	○	120			4	2	62
	23	**Vizio** VO420E	650	62	◒	◒	◒	◒	○	◓	60			3	2	37
	24	**Dynex** DX-L42-10A	600	58	◒	◒	○	○	○	◓	60			3	2	55
	25	**Haier** HL42XK1	700	57	◒	◒	○	◒	○	○	60			4	2	52
	26	**Mitsubishi** Unisen LT-40151	1,300	54	○	○	○	○	◒	○	120			4	3	41
	27	**Sylvania** LD427SSX	900	43	○	○	○	●	○	○	60			3	1	65
	28	**Magnavox** 42MF439B/F7	800	31	◒	◒	○	●	○	○	60			3	1	62
D		**37-INCH** All tested sets have 1080p resolution.														
	1	**Samsung** LN37B650	1,000	75	◒	●	○	○	●	●	120		•	4	2	31
✔	2	**Panasonic** Viera TC-L37S1	700	73	◒	◒	◒	○	◓	○	60			3	1	29
✔	3	**LG** 37LH55	1,000	69	●	◓	◒	○	○	◓	"240"			4	2	37
✔	4	**LG** 37LH30	700	64	◒	◒	◒	○	○	◓	60			3	1	32

B9 Toshiba $1,000 **CR Best Buy**
B11 Sony $1,200

These 1080p sets all have excellent HD picture quality. The relatively pricey **B1** and **B2** have 120Hz technology and LED backlights. **B2** has access to online content, including streaming movies; on **B1,** Internet access is optional. It's the only one of the group with very good sound. **B3** has quasi-240Hz technology and a very good viewing angle. **B9** and **B11** are fairly low-priced for a 120Hz set of this size.

40- and 42-inch sets:

C2 LG $1,400
C3 Samsung $1,200
C5 Insignia $750
C6 Hitachi $850
C9 Toshiba $800
C10 JVC $860
C11 Insignia $650 **CR Best Buy**
C12 LG $700 **CR Best Buy**
C18 Sanyo $630 **CR Best Buy**

All are 1080p sets; most have excellent HD picture quality. Among the pricier sets, **C2** has quasi-240Hz and full-array LED backlighting, and **C3** has 120Hz and access to online streaming movies. **C5, C6,** and **C9** are low-priced for a 120Hz set of this size. **C10** has a very good viewing angle, very good sound, and a built-in iPod dock. **C11, C12,** and **C18** are low-priced, and **C12** and **C18** have a very good viewing angle.

37-inch sets:

D2 Panasonic $700
D3 LG $1,000
D4 LG $700

These 1080p sets have excellent or very good HD picture quality and a fairly wide viewing angle. **D3** has quasi-240Hz technology. **D1** is pricier but offers basic Internet access.

Guide to the Ratings for LCD and plasma TVs

Overall score is based mostly on picture quality but considers sound quality and ease of use. Displayed scores are rounded; models are listed in order of precise overall score. **Picture quality** scores reflect clarity, detail, and color accuracy of high-definition 1080i signals and standard-definition 480i signals routed via HDMI. **Viewing angle** is our evaluation of picture quality from various horizontal and vertical points off-center. **Sound quality** combines objective measurements and subjective listening by trained panelists. **Ease of use** assesses the remote control and onscreen menus. For LCDs, **Highest frame rate** is how many times the picture refreshes in 1 second. For TVs with **LED backlight,** we note whether it's full-array or edge-lit. **Internet-enabled** indicates that a set can go online to certain sites when used with a broadband connection. **Energy cost** estimates are based on the 2009 national average electricity rate, for 8 hours on, 16 hours off (in standby) per day, using our best picture settings, with any energy-saving features turned off. **Price** is approximate retail.

32-inch sets:

E5 Panasonic $450
E6 Hitachi $450
E7 Insignia $450
E8 Vizio $390 **CR Best Buy**
E13 LG $475

These sets all have excellent or very good picture quality and modest prices. **E7** is a 1080p set; **E5, E6, E8,** and **E13** are 720p models. **E5, E8,** and **E13** have a fairly wide viewing angle.

26-inch sets:

F1 Sony $400
F3 Insignia $300
F4 Sanyo $300 **CR Best Buy**
F7 LG $400

F1 and **F4** have excellent HD picture quality. **F3** and **F7** have very good HD. **F7** has fair sound but a very good viewing angle, rare in this size. **F1, F3,** and **F4** have a narrow viewing angle.

Best & worst brands

Most trouble-free

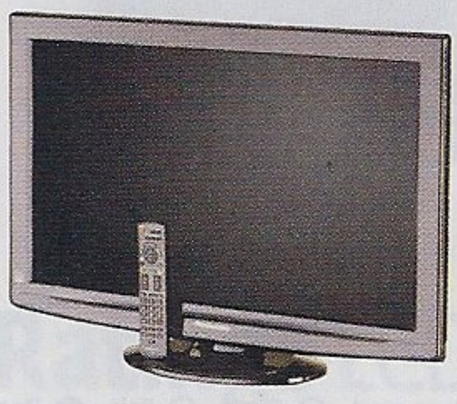
LCD and plasma TVs continue to build a solid track record for reliability. Only 3 percent on average needed repair or had a serious problem during their first few years of use. That's what readers told us about 118,700 LCD and 40,072 plasma TVs purchased between 2006 and the first half of 2009.

LCD brands with comparably low repair rates (in alphabetical order) were Hitachi, JVC, LG, Magnavox, Panasonic, Philips, Samsung, Sanyo, Sharp, Sony, Sylvania, Toshiba, and Vizio. Mitsubishi and Westinghouse were more repair-prone. Among plasma brands, Hitachi, LG, Panasonic, Pioneer, Samsung, and Sanyo had comparably low repair rates.

Indications are that problems arise early if at all: 73 percent of repairs were on TVs no more than one year old. Also reassuring: Our data show that even for sets five to six years old, the overall repair rate has been relatively low, about 10 percent. (Models in a brand can vary, and design or manufacture changes might affect future reliability.)

Most consistent performance

If you're buying a TV we haven't tested, look for brands with TVs that have most consistently done well in our tests. Panasonic, Samsung, and Sony TVs have been among the best LCD sets over the past three years. Insignia LCD TVs have had consistently respectable scores. Most other brands had some sets that did very well but others that weren't nearly as good, so we can't generalize about performance. In plasma TVs, LG, Panasonic, Pioneer, and Samsung sets have had consistently high scores. Our history suggests an untested set from a consistently top brand is likely to do well.


E5 Panasonic

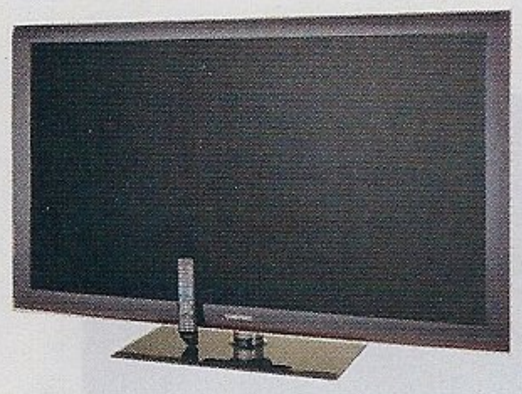

E8 Vizio


E13 LG

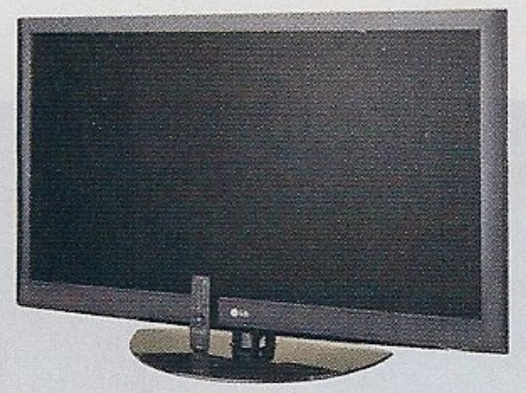
Ratings LCD TVs

Continued

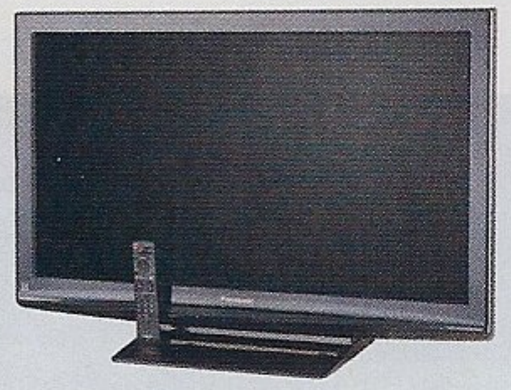
	Rank	Brand & model	Price	Overall score (0 P | F | G | VG | E 100)	Test results: Picture quality: High definition	Picture quality: Standard definition	Picture quality: Viewing angle	Picture quality: Sound quality	Ease of use: Remote	Ease of use: Menu	Features: Highest frame rate	Features: LED backlight	Features: Internet-enabled	HD-capable inputs: HDMI	HD-capable inputs: Component-video	Energy cost (per yr.)
		E 32-INCH All tested sets have 1080p resolution except as noted.														
	1	**Samsung** LN32B650	$900	77	◉	◉	○	○	◉	◉	120		•	4	2	$24
	2	**Samsung** LN32B550	650	74	◉	◒	○	○	◉	◉	60			4	2	34
	3	**Panasonic** Viera TC-L32S1	550	73	◒	◒	◒	○	◒	○	60			3	1	24
	4	**Sony** Bravia KDL-32XBR9	600	71	◉	◉	○	◒	○	◒	120			4	2	26
✔	5	**Panasonic** Viera TC-L32C12 (720p)	450	70	◒	◒	◒	○	◒	○	60			2	1	23
✔	6	**Hitachi** L32A403 (720p)	450	69	◒	◒	○	○	◒	◒	60			4	2	22
✔	7	**Insignia** NS-L322Q-10A	450	69	◉	◉	○	○	○	◒	60			4	2	20
✔	8	**Vizio** VO320E (720p)	390	68	◉	◉	◒	○	○	◒	60			2	2	23
	9	**JVC** LT-32J300	540	68	◒	◒	◒	◒	○	◒	60			3	2	31
	10	**LG** 32LF11	600	68	◉	◒	◒	○	○	◒	60			3	1	28
	11	**Sony** Bravia KDL-32S5100	600	67	◉	◒	○	○	○	◒	60			3	2	28
	12	**Vizio** VL320M	480	66	◉	◉	◒	◒	○	◒	60			3	2	28
✔	13	**LG** 32LH20 (720p)	475	64	◒	◒	◒	○	○	◒	60			2	1	25
	14	**Sanyo** DP32649 (720p)	380	60	◒	◒	◒	◒	○	◒	60			2	2	24
	15	**RCA** L32HD31R (720p)	350	54	◒	◒	◒	◒	○	○	60			2	1	32
	16	**Auria** EQ3288 (720p)	480	48	○	○	○	●	◒	○	60			2	2	25
	17	**Vizio** VA320E (720p)	420	46	○	○	○	●	○	◒	60			3	2	21
	18	**JVC** LT-32A200 (720p)	470	45	○	○	○	◒	◒	○	60			3	1	24
	19	**Philips** 32PFL3504D (720p)	470	34	○	○	◒	●	○	○	60			3	1	32
	20	**Magnavox** 32MF339B/F7 (720p)	420	32	◒	○	◒	●	○	○	60			3	1	36
	21	**Sylvania** LC320SSX (720p)	400	32	◒	◒	◒	◒	○	○	60			3	1	25
		F 26-INCH All tested sets have 720p resolution.														
✔	1	**Sony** Bravia KDL-26L5000	400	68	◉	◉	◒	○	○	○	60			3	2	16
	2	**ViewSonic** N2690w	480	66	◒	◒	◒	◒	◒	○	60			1	1	22
✔	3	**Insignia** NS-L26Q-10A	300	65	◒	◒	◒	○	○	◒	60			2	1	16
✔	4	**Sanyo** DP26649	300	64	◉	◉	◒	○	○	◒	60			2	2	19
	5	**Panasonic** Viera TC-L26X1	425	64	◒	◒	◒	◒	◒	○	60			2	1	17
	6	**Samsung** LN26B460	450	61	◉	◉	◒	●	○	◉	60			3	2	18
✔	7	**LG** 26LH20	400	61	◒	◒	◒	◒	○	◒	60			2	1	20
	8	**RCA** L26HD41	400	60	◒	◒	◒	◒	○	○	60			2	1	21
	9	**Westinghouse** SK-26H630S	300	54	◒	◒	◒	◒	○	◒	60			2	1	20
	10	**Toshiba** 26LV610U	400	51	○	○	◒	◒	◒	○	60			2	1	21
	11	**Hitachi** L26D103	500	46	○	○	◒	◒	◒	○	60			2	1	21



A1 Samsung



B9 LG



C2 Panasonic

Ratings Plasma TVs

In performance order, within types. (Types designated A, B, etc.)

● Excellent
◒ Very good
○ Good
◒ Fair
● Poor

Recommendation	Rank	Brand & model	Price	Overall score (0 P | F | G | VG | E 100)	Test results: Picture quality: High definition	Test results: Picture quality: Standard definition	Test results: Sound quality	Ease of use: Remote	Ease of use: Menu	Internet-enabled	HD-capable inputs: HDMI	HD-capable inputs: Component-video	Energy cost (per yr.)
A	**54-INCH AND LARGER** All tested sets have 1080p resolution.												
✔	1	**Samsung** PN58B650	$1,950	82	●	●	○	●	●	•	4	2	$80
	2	**Panasonic** Viera TC-P54Z1	4,000	80	●	●	○	◒	○	•	4*	2	78
	3	**Panasonic** Viera TC-P54V10	2,400	78	●	●	○	◒	○	•	4	2	49
	4	**Samsung** PN58B860	2,480	77	●	●	◒	●	●	•	4	1	53
✔	5	**LG** 60PS80	2,100	76	●	●	◒	○	◒	•	4	2	99
	6	**Samsung** PN58B850	2,400	75	●	●	●	●	●	•	4	1	68
✔	7	**Panasonic** Viera TC-P54S1	1,400	72	●	●	◒	◒	○		3	2	47
✔	8	**Panasonic** Viera TC-P54G10	1,750	71	●	●	◒	◒	○	•	3	2	65
	9	**LG** 60PS60	1,950	71	●	◒	◒	○	◒		4	2	79
B	**50-INCH** All tested sets have 1080p resolution except as noted.												
✔	1	**Samsung** PN50B650	1,250	82	●	●	○	●	●	•	4	2	66
	2	**Samsung** PN50B850	1,500	80	●	●	○	●	●	•	4	1	47
	3	**Samsung** PN50B860	1,600	77	●	●	◒	●	●	•	4	1	38
	4	**Panasonic** Viera TC-50PS14	1,600	77	●	●	○	◒	○		3	2	53
✔	5	**Panasonic** Viera TC-P50G10	1,400	77	●	●	○	◒	○	•	3	2	50
	6	**Panasonic** Viera TC-P50V10	2,100	75	●	●	◒	◒	○	•	4	2	73
✔	7	**Panasonic** Viera TC-P50X1 (720p)	900	72	●	●	◒	◒	○		3	2	50
	8	**Panasonic** Viera TC-P50C1 (720p)	800	71	●	●	◒	◒	○		2	2	36
✔	9	**LG** 50PQ30 (720p)	800	70	◒	◒	○	○	◒		3	2	57
	10	**LG** 50PS60	1,300	69	◒	◒	◒	○	◒		4	2	78
✔	11	**Insignia** NS-P501Q-10A (720p)	650	66	◒	◒	○	○	◒		2	2	33
	12	**Insignia** NS-P502Q-10A	1,000	63	◒	◒	◒	○	◒		2	2	61
C	**42- AND 46-INCH** All tested sets have 1080p resolution except as noted.												
✔	1	**Panasonic** Viera TC-P42G15	1,000	78	●	●	○	◒	○	•	3	2	52
✔	2	**Panasonic** Viera TC-P42S1	830	77	●	●	○	◒	○		3	2	57
	3	**Panasonic** Viera TC-P46S1	1,200	76	●	◒	○	◒	○		3	2	55
	4	**Panasonic** Viera TC-P42G10	900	75	●	●	◒	◒	○	•	3	2	53
✔	5	**Panasonic** Viera TC-42PX14 (720p)	550	72	◒	●	○	◒	○		2	2	29
✔	6	**Panasonic** Viera TC-P46G15	1,300	71	●	●	◒	◒	○	•	3	2	54
	7	**Panasonic** Viera TC-P42X1 (720p)	600	71	◒	●	○	◒	○		3	2	41
✔	8	**LG** 42PQ30 (720p)	650	68	◒	◒	◒	○	◒		3	2	47
	9	**Insignia** NS-P42Q-10A (720p)	550	64	◒	◒	◒	○	◒		2	2	27

*Four inputs are on separate receiver, which connects to TV wirelessly or via dedicated input.

Plasma TV overview

Most of the plasma TVs in the Ratings have excellent picture quality, so there are many great choices. Recommended models and CR Best Buys are mainstream values, but you might want to consider high-scoring sets not recommended only because of relative cost. The high prices usually get you features such as Internet connectivity or a super-slim design, which might be worth the cost to you. (Prices were accurate as we went to press but may have changed since. Also, some high-scoring TVs recommended previously are not called out here but are worth buying if the price is right.) Screen size is indicated by two digits in a model name. For example, P54S1 is 54 inches; P42S1 is 42 inches. Models within a series often perform similarly, so if we recommend a 50-inch set and you want another size that we haven't tested, see if there's one in that series.

✔ CR Best Buy

These recommended models offer the best combination of performance and price.

✔ Recommended

These are models that stand out for the reasons noted below.

54-inch and larger sets:

A1 **Samsung** $1,950
A5 **LG** $2,100
A7 **Panasonic** $1,400
A8 **Panasonic** $1,750

A1, A5, and **A8** have access to online content, including streaming movies. **A5** has very good sound. **A8** costs more than its sibling **A7** but adds Internet access and THX certification. A drawback to both is fair sound.

50-inch sets:

B1 **Samsung** $1,250
B5 **Panasonic** $1,400
B7 **Panasonic** $900
B9 **LG** $800 **CR Best Buy**
B11 **Insignia** $650 **CR Best Buy**

B1 and **B5** are 1080p sets with Internet access. **B7, B9,** and **B11** are low-priced 720p sets.

42- and 46-inch sets:

C1 **Panasonic** $1,000
C2 **Panasonic** $830
C5 **Panasonic** $550 **CR Best Buy**
C6 **Panasonic** $1,300
C8 **LG** $650 **CR Best Buy**

C1 (42 inches) and **C6** (46 inches) are 1080p models that have Internet access. **C5** and **C8** are low-priced 720p sets. **C8** is the only one in this size with very good sound.