



Why Buy a Professional Monitor, When Consumer TVs Look So Good?

Gary Mandle
Sr. Product Manager
Display Products
Sony Professional Solutions of America

This seems to be a good question and on the surface hard to explain or justify. However, there are some very significant issues that need to be considered when making this comparison. After all, at \$900 for a nice 42 inch TV, it's hard to understand why a 25 inch monitor may cost as much as \$6000 is a better choice.

What is a TV and what is a monitor?

A TV is a device intended to be used in a home. It presents an appealing picture to draw the viewer into the story. It's designed to make the picture interesting, to convey the emotion of the story to the viewer and have the aesthetics that make people want to place them in their homes.

A monitor is much different. A monitor is a tool used by your technical staff to develop content for distribution, whether it is cinematic, production or broadcasting. It is designed for the accurate display of the input image and to show any signal defects that might appear in the picture. In many cases, a monitor will not look as pretty as a TV.

What does a monitor give you that a TV does not?

If we look at the purpose of a TV, we see that it displays an image that's interesting. The manufacturer wants viewers to like the picture so they will buy it. This means that each manufacturer has to offer some enhancement over their competitor so that they will win your business. As a TV viewer, you benefit the most.

TVs normally have very fast replacement cycles. You may buy a model this year and it's very likely that there is a replacement model on the dealer's shelf next year. It has new features but more importantly it has a new look. Another issue is the same one that might draw you to buying a TV over a monitor; is price. In order to get that price point, the manufacturer has to make certain compromises so the performance and price are correct for the market segment. Things like interfacing to the web or cable boxes are more important than image stability or unit consistency. Other issues like 24/7 operation and periods of displaying long static images are not things considered when designing a TV.

A monitor is just the opposite. The image is designed to be displayed accurately, meaning the monitor will conform to certain industry standards so that the image is consistent. Normally, image accuracy is the difference between monitors costing very little to others that seem to be priced much higher.

Monitors also are designed for stability. This is the function of how long the monitor remains accurate. Some monitors change color in a matter of months. Others may not change over the life of the monitor which can be many years.

Monitors use interfaces that conform to professional system design. A TV will have an HDMI™ input as its main connection, but almost no facility would base their infrastructure on this format since it is neither reliable nor flexible.

TV's vs. Monitors

- Image is different between models. Even if the TV is from the same manufacturer, unit to unit image differences are common.
- Color and brightness are going to change over a very short time.
- Internal processing is there to hide artifacts.
- The entire image is not displayed on the panel. In many cases, it is impossible to map pixel to pixel.
- The life of the TV is very short (in professional applications it can be as short as 6 months with hard usage).
- TVs don't last long with images that don't move.
- TVs are not designed to comply to any imaging standards. Even if it's possible to adjust them to certain values, there is a cost to having someone continually confirm they are right.
- TVs don't have tools such as waveform monitors, on screen markers, or focusing assistance tools.
- TVs requires converter boxes to integrate into professional systems.

Why is this important?

You've heard the term "pay me now or pay me later". This is what you need to know when making these choices. The TV will be easy to get and cost very little. But, you need to be aware of some issues you will have to face by using one.

- It will be very likely that the production will not look as it did when it was shot. If you're spending a lot of money on the camera, lights and people, you can count on the fact that it has all been wasted.
- Just because you have a good TV has no bearing on what it will look like when you finish post.
- There is no calibration on a TV, so color shadows and details will look different. Not only from another manufacturer's TV, but also from a sample of the same model.
- Get ready to shoot it twice. A TV is designed to hide image artifacts so the image appears to be more appealing. If undetected, you may have to repeat a significant part of your production due to a technical fault or even worse non-compliance when encoded for broadcast.
- If you're using a TV to look at your material as dailies or have others building parts of the image (as in CG effects) blocking and framing of the image will not be correct since TVs don't size the image to the TV bezel and there is no provision to display area markers. Also, no one will be able to tell what color the images are, so matching an effect into the original image is just a guess.
- You may have to rent/buy a waveform monitor for the production, yet many monitors incorporate this into the chassis resulting in a lower cost solution.
- It will require converters and other peripheral equipment at an additional cost to see closed caption on a TV unless you can grab the image off air.
- Most TVs are using 8 bit processing, yet most systems are designed as 10 bit. So in essence, you have a system developing 1023 individual video levels, yet you can only see 254. What's in the remaining 769 levels? You have no idea and it may have teeth.
- The warranty period for a monitor normally is much longer than a TV. Typical warranty for a TV can be as short as 90 days from purchase where some monitors are as much as 3 years.