

Video Calibration – What is it and why do we do it?

by Lou Erhardt – July 12, 2010

Albert Einstein once said, “You never really understand something until you can explain it to your grandmother.” It is a simple gauge, yet one that can be very humbling when we deal in complex topics. Nowadays, most of us have been introduced to, and/or have some level of understanding of what video calibration is. Still, we might find it a bit challenging to describe what calibration actually means.



Let’s start with the word itself. Calibration. Too often, that word alone is a daunting, if not completely foreign term to consumers. Professional calibrators have consequently been coming up with some creative “household names” when introducing their customers to it. “Performance Tuning,... Color Alignment... Professional Enhancement,” are a few of the favorites we’ve heard. A decade ago I admittedly had little to no working knowledge of TV controls. I didn’t know what they did or how they affected picture quality. I was, you guessed it... in retail, selling these televisions! This was a fairly prominent shirt & tie electronics chain, and we prided ourselves on product knowledge and better-educating our customers over the big box stores. It was a different time then, and calibration was accessible only to diligent repair technicians and high-end custom integrators.

Ok. So what exactly *are* we talking about here? We need to first come to an understanding that all those controls inside your TV are *not* simply there for personal preference. There is an exact point for each and every TV where Brightness, Contrast, Color, ...and all the other controls *should* be. The Society of Motion Picture and Television Engineers (SMPTE), founded in 1916, sets the standards that broadcasters and Hollywood producers have used going back to the earliest days of cinema. These standards contain specific definitions for red, green, blue, gamma curves, ...and a lot of other stuff we will leave alone for now. In Hollywood, to film a movie that appears life-like, directors use TV monitors that are tuned with these settings. Then, by matching their camera to the monitor, they can accurately get the color and artistic look they want. In order to replicate that same life-like viewing at home, we need our television adjusted to those same studio settings. When we find this point, we are seeing exactly the “Director’s Intent.”

Simple enough so far, right? So why doesn’t my brand new TV come with these settings dialed-in right out of the box? The short answer is, because it can’t. Proper picture, and the settings to get there, depends on many variables. Most notably, the lighting in your room (ever notice those Day & Night modes?) is the big factor. But age of the panel, hours of usage on the lamp, even elevation, can all come into play. That, and let’s be honest... it’s no secret that manufacturers have a strong interest in being brighter than the competition they’re up against. Take your favorite electronics retailer: Brand X might

look watchable (maybe even great!) in that showroom with 800 fluorescent tubes burning hot overhead. Now try those same settings in the dark for a few hours at home and let me know how your eyes are doing.

Reducing eye strain isn't the only advantage to proper adjustments. There are many other benefits achieved by adjusting the settings for the lighting in the room. These include: reduced heat output and lower energy consumption, longer equipment life, better detail in dark movie scenes, and maximum dynamic range (contrast ratio). We aren't yet dealing with precision color meters or secret service menus to get to this point. The best part is these are improvements anyone can make on their own with a simple DVD or Blu-ray Disc!

So, if we can accept and acknowledge there is a need to make adjustments to our displays when we get them home, and that it is mandatory in getting the best performance out of them... what kind of visual improvements can we expect to see, and how? In the next article, we will get into the how-to's of calibration and take a look at some examples.