Charles Poynton
tel +1 416 535 7187
charles @ poynton.com
www.poynton.com

SpectraCal

Poynton's Vector

5 *B, V,* and *M* are obsolete

Broadcast video monitor: BVM.

Program production culminates with conversion of video data representing the finished program – think of it as a massive amount of *R'G'B'* image data – to colored light on the surface of a display. To enable consumers to witness a program as it was intended, the final production display must be characterized. To achieve faithful presentation to the consumer, the consumer's display must approximate the final production display. *B, V,* and *M* are the first three letters of the part numbers of a family of popular (and expensive) Sony displays commonly used for production: A Hollywood studio might routinely approve and master on a Sony BVM-D32E1WU.

I argue that in the modern age the notation "BVM" is seriously wrong. At first glance you might think that a part number could hardly matter, but I contend that the term and the part number exposes serious philosophical issues that are worth discussing.

First, the B is wrong. "Broadcast" reflects the old scheme where a very small number of program producers, aggregators, distributors, networks, and television stations were all part of a highly centralized distribution system. But YouTube doesn't "broadcast;" the iTunes store doesn't "broadcast;" Hulu doesn't "broadcast," Netflix doesn't "broadcast;" and when you watch a DVD or a Blu-ray disc, you're not experiencing "broadcast." None of the new, innovative, disruptive entrants in video distribution involve what I would term broadcasting.

Second, the V is wrong. Emergent displays such as RGB-LED backlit LCD displays offer primaries very close to the DCI P3 RGB primaries of digital cinema: These displays can be used for certain aspects of digital cinema creation, processing, and color approval. It's not just "video" that we're poised to approve.

Third, and most seriously, M is wrong. In BVM, M stands for "monitor." If you consult a dictionary, monitor is a passive verb: You are watching something as it goes by. A related concept is Quality Control (QC): If you're in a QC department, you examine imagery to make sure that no unintended impairments have been introduced, but you do not modify the content. The QC department may raise a red

flag, but QC is not responsible for, and must not alter, the look of a show. The most important function of the display at the end of the content creation chain is approval, and *approval* is an active verb – program content is manipulated until its *R'G'B'* values create the intended visual impression. M for monitor is wrong.

So, if not BVM, what? I suggest "studio HD reference display."

The word "studio" implies professional content creation. You may create content in your garage, but if you successfully distribute content at a reasonably wide scale, then that's your studio.

I use the word "reference" because the display used at the end of the content creation chain establishes the intended reference for all downstream displays. If an identical display is present downstream in an identical environment, then it should present an identical picture. In the consumers' premises, we don't expect the tight tolerances of a studio display, but we do seek the same aim points.

My term uses HD instead of video because we don't expect any emergent SD displays. For consumer mastering, there's no need to refer to cinema because the consumer won't have access to movies encoded in digital cinema form for some time to come.

I use "display" because that is the generic term for the transducer that converts electrical video signal to light.

Color appearance is strongly influenced by surround conditions. My recent proposal for a new standard is entitled "studio HD reference display *and viewing conditions*."

Some of you might have taken the title of this piece to suggest that BVM CRTs are dead. That conclusion is certainly true: The BVM-D32E1WU that I mentioned earlier has, in fact, been discontinued by Sony. I will address that general issue in a future piece.

Your comments are welcome. ■