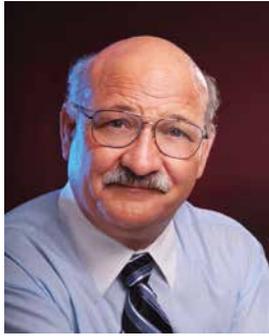


## HDMI CORNER

BY JEFF A. BOCCACCIO

# A Portable Video Test Generator Worth Eyeing



**↳ SINCE THE START OF HDMI CORNER**, the most frequent request from integrators has been for suggestions on field test equipment. It is a challenge because the cost of these products tends to be astronomical.

Over the past year we've been testing various HDMI test equipment, with signal generators being the most common. When you have to determine any field HDMI issues, it is vital that you can absolutely rely on whatever test product you use. You are basing all of your decisions on these results.

The most significant feature of any HDMI video test generator is the video output itself. It has to meet certain output parameters to yield the necessary data to make hard-core decisions in the field. This has been a major obstacle for many products that are relatively portable and relatively affordable.

They all do a fairly good job of generating test patterns like SMPTE charts and such, as well as with necessary protocols and encryption data. But when it comes to 6Gig TMDS data most products fall off the edge of DPL's limits.

Then we got in the new Murideo Fresco SIX-G portable generator. Not only was the price attractive (MSRP \$2,495), but what a performer. As with many generators, the unit is loaded with features: ISF certification, including ISF test patterns like PLUGE, Chroma Multi-burst, Color Girls and more; more than 100 patterns for setup, troubleshooting and calibration; ANSI contrast patterns; CalMan support; APL support; moving test patterns; selectable 1.4 and 2.2 HDCP; and HDR planned for future versions.

The interface is rather easy to use. You can flip from one window to the next, effectively allowing the user to "page" through the settings for customized output. It supports bandwidths out to 18Gbps at 4K with selectable Deep Color and color subsam-

pling positions. But where it really takes off is output.

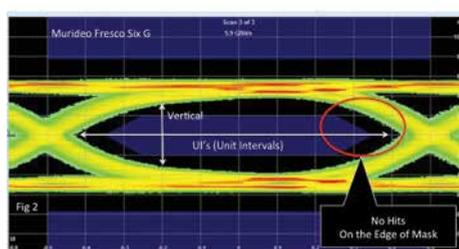
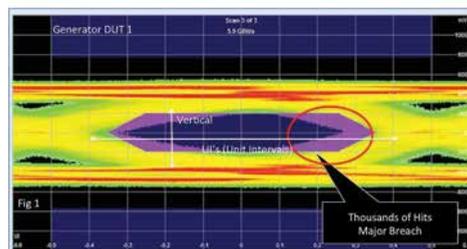
To pass DPL requirements for test equipment the generator must produce the necessary output levels to establish a substantial base line. DPL uses a specially built eye mask demanding a precise amplitude vertically and UIs (Unit Intervals) horizontally, shown in Fig. 1 (below, left). It is typical for the eye to breach the DPL's mask limits where the signal waveform collides with the mask. Fig. 2 shows Murideo's perfect waveform response, which barely makes the mask without any collisions — this is where many generators we've tested fail.

The DDC output is also very impressive with less than 98ns of rise time and a full 5-volt rail. If there is an EDID or HDCP problem, having robust DDC performance like this allows for easy troubleshooting.

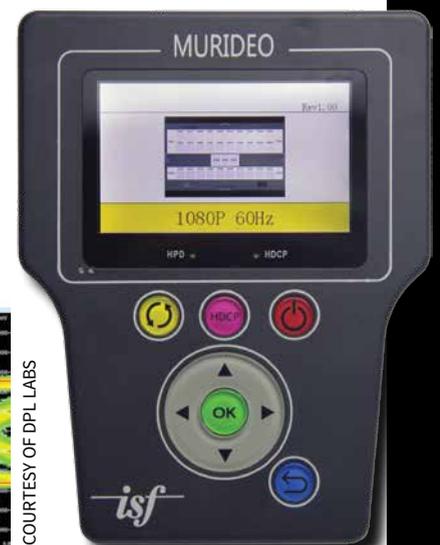
On the down side, it would have been nice to be able to vary the output so an integrator can push the system to its low signal limits. But then again, there are generators that cost over \$100,000 that don't even offer this feature.

A lithium battery provides long-lasting power, and a color display aids setup and monitoring what the unit is generating. Now, firing up this generator and connecting it to the display verifies if the display is at least functional. By working your way backwards toward the source you can determine where a problem may be hiding. Take a typical system that has a Blu-ray player, a switch, and a display. Let's assume the system does not function correctly; once the display is confirmed the user can simply move the generator back to the input of the previous stage until the problem is pinpointed. This procedure can be used for all kinds of system configuration. ■■■

**JEFF BOCCACCIO, president of DPL Labs, can be reached at [jeff@dpllabs.com](mailto:jeff@dpllabs.com)**



Murideo's perfect waveform response (right), without mask hits, is where many test generators fail.



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