

## Post-Production Firm Able to Create Truer Colors And Maintain Broadcast Standards Using Tektronix WFM7120 Waveform Monitor

*DigitalFilm Tree Colorists Obtain Greater Creative Control from Precision Monitoring*



### Solution Summary

Challenge	DigitalFilm Tree must accurately and quickly verify and correct video and audio content created for television programs and movies to assure standards compliance of a variety of digital video and audio formats and maintain a reputation for high quality output.
Solution	A WFM7120 Waveform Monitor installed on an IP network and integrated with multi-vendor editing system. The monitor is available to colorists and editors using non-linear editing tools in a variety of edit bays to detect – frame-by-frame – discrepancies in color, video and audio signals. Engineers and technicians also utilize the WFM7120 for installation, set up and preventative maintenance routines.
Benefits	With a more accurate measurement system, DFT editors are able to complete post-production work much more quickly and provide viewers a high quality visual and audio experience that consistently meets mandated broadcast standards.

DigitalFilm Tree (DFT), a post-production firm Hollywood, provides editorial, online, effects and color-correction services for television programs and films. Among others, the company's clients include the CW television network weekly comedy "Everybody Hates Chris" and the NBC comedy "Scrubs." Shot on the super-16mm film format, "Scrubs" then follows an all-digital workflow pioneered by DFT. In contrast, CW's "Everybody Hates Chris," originates digitally on a Viper

camera and maintains an entirely digital path, from dailies to editorial to final online. "There's a transition going on to digital and high definition in the industry at large," says Zed Saeed, senior post-production consultant at DFT. "We're on the front-end of the transition."

Added to that, DFT works under pressure from two fronts: clients need TV shows edited quickly to meet weekly TV schedules, and the programs must meet strict standards related to broadcast signal transmission. The U.S. Federal Communications Commission (FCC), and the National Television System Committee (NTSC) set standards for video and audio broadcasting within the United States. Signals that differ in any way from the standard can create noise when shows are aired. The show can be rejected and fines can be levied against the errant broadcaster. The post-production house would likely feel the heat too. "Your reputation is only as good as your output. If you're doing something 'illegal,' there are problems because some colors can't be broadcast," says Saeed.

DFT needed measurement equipment that was reliable and easy to use to handle the tight deadlines, format mixes and broadcast standards while at the same time giving editors an accurate way to craft lush color enhancements. DFT chose the WFM7120 monitor, the latest waveform monitor from Tektronix designed specifically for both legacy analog and new digital video technology. "There's nothing better than Tektronix video equipment, especially in the transition from linear to nonlinear work," says Saeed. "It wouldn't occur to us to use anything else."

With the Tektronix WFM7120, DFT colorists are able to push their creativity without concern that they will exceed the boundaries for luminance and chrominance established by their clients. They aren't concerned with overstepping them and running into noise when shows are aired. This helps DFT to quickly produce final ready-to-air programs. For example, "Everybody Hates Chris," a weekly program that runs for 22 minutes is completed in one week. An additional time constraint: The show's producers want four seasons "in the can" in one season to avoid the issue of child actors seemingly growing up before the viewers' eyes.

These popular TV shows begin to look lifelike when DFT colorists start adding color — color that can be more accurately measured with the WFM7120. Knowing what

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*Zed Saeed, senior post-production consultant*

the boundaries for luminance and chrominance are, DFT colorists can push right up to the edges — without going too far. And more high quality work can be produced in less time.

The company’s editors work in a nonlinear video editing environment. In addition to Mac G5 computers that run Apple’s Color and Final Cut Pro, DFT uses PCs running Microsoft XP and Linux, SGI computers, and Apple Xsan and Storenext FX servers. They also maintain a “village” to handle the mix of formats editors work with: Sony’s HDCAM-SR and HDCAM, DVCPRO, Digital Betacam, DVCAM, Betacam SP and DV.

### **WFM7120 Delivers High-Performance Monitoring, Measurement**

DFT uses the WFM7120 to monitor the content and compare this with standards they’ve defined in support of each client. It is also used to monitor signal integrity during the film transfer process. The WFM7120 is also used to test the 150-foot, dual-link cables that carry the 4:4:4 RGB signals around the entire DFT facility.

The WFM combines video and audio monitoring capabilities with available support for Dolby audio, in-depth data analysis, and SDI signal measurement as well as AV delay measurement. The WFM7120 also supports simultaneous A/B input monitoring.

The monitor gives DFT editors the luxury of time – time not spent finding and fixing errors. DFT colorists can then fix them with See and Solve™ ease of use they call “as simple as it can really get.” Notes Saeed, “Time is wasted when something doesn’t pass broadcast QC (quality control) and you have to fix it. You should be able to put things out with confidence.”

A lesser-known specialty of DFT is production capacity. “Very few people know that DFT has a strong creative and production component to it,” explains Saeed, “We have created commercials, award-winning documentaries, short films and numerous promotional works for our technology partners.” When working on its own productions, DFT uses the WFM7120 to provide real-time feedback on camera set-up and live video signals.

That’s where the CaptureVu™ capability on the WFM7120 has proven to be especially powerful, allowing DFT to capture, store, test and analyze video data. The data can be displayed in waveform,

vector, gamut or picture displays. Unlike “freeze” captures, colorists can compare the live signal to capture data in one type of display (for example, a waveform display), and then reconstitute the same data to make the same live-to-capture comparison in a different display (such as a vector or picture display). “In the age of digital acquisition, the CaptureVu utility is an indispensable on-set tool for us,” says Saeed.

With CaptureVu, a video frame generated by one piece of equipment (for example, a camera) can be stored and used later by DFT as a reference to configure other equipment for matching video characteristics. In addition to the WFM7120’s internal hard drive, capture data can also be stored conveniently on a USB memory device and transferred to another instrument or saved to a PC for further detailed analysis.

In addition to user-initiated captures, the monitor can perform a triggered capture that automatically acquires data on the occurrence of specific faults. Triggered captures are particularly useful for finding intermittent errors and in capturing data about fault conditions at remote sites.

DFT uses the triggered-capture feature consistently throughout post operations. “Often we need to know only if a specific error has occurred,” explains Saeed. “We can set the WFM7120’s trigger-capture to look for those specific errors and initiate a data capture if *only* that error occurs. This saves us an enormous amount of time, which would otherwise be spent looking through extensive logs to locate the error.”

### **Tektronix: Enabling Innovation in the New Digital World**

Four computers are dedicated to “Everybody Hates Chris,” but the 15-person company has the capacity to work on 10 shows at one time. The WFM7120 can be moved from color to audio to video bays, or it can be accessed over an IP network, which allows remote access from any of the edit bays spread out across DFT’s 10,000 sq ft Hollywood facility.

“The Tektronix WFM7120 has quickly become part of the fabric of our system, not just a piece of hardware,” says Saeed. “The WFM7120 is an absolutely essential asset for monitoring the quality of SD and HD digital component video. This helps us produce the best possible output for our clients while keeping costs down and achieving and maintaining our desired content quality.”

“I’ve been doing this since 1993,” says Edvin Mehrabyan, Senior Online Editor at DFT. “Before, we had a lot of different tools adding much complexity, now we can do pretty much everything with one tool. The Tektronix WFM7120 is that tool.”

**Tektronix**