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Ideas + Execution

Seeing Red... finally

The 4K format is just hitting the mainstream in episodic television, and is on the close horizon for non-fiction film and TV shooters. Leading the charge is the 4K offering from Red Digital Cinema. But is Red's affordability balanced by ease of use, and can the format live up to the visual hype?

by: **Carl Mrozek**   Jan 16, 2008 | Print | Share

After two years of anticipation, the first batch of Red Cameras was shipped to the first 100 early adopters willing to gamble a US$1000 deposit on a dream. And for the most part, they were gambling on technology that was predominantly still a gleam in the eye of its beholder, Jim Jannard.

In the beginning, the eyes and heart of the Red Camera project was essentially its 4K (4520 x 2540 pixel) Mysterium cmos sensor, but the rest - including resolutions from 4K to HD, frame rates from 1 fps to 80 fps, a dynamic range of six-plus f-stops, color viewfinders, high speed flash cards and dockable hard drives, four-channel audio, lenses, and all the rest - were still an inventory of engineering targets rather than actual hardware or software. This is partly what made the Red Camera so alluring: its promise of delivering a filmmaker's wish list of acquisition features, all crammed into one compact camera chassis. Equally remarkable was the pledge to accomplish this in less than two years, despite starting without a working prototype or manufacturing facilities.

Despite the long odds, last September Red Digital Cinema shipped cameras to the first 100 people (of several thousand) who pre-ordered. Dino Georgopoulos, an la-based indie producer, got Red Camera number 31, which has launched a string of 4K projects for him, including many tv spots. The spots were shot in 4K and slow-motion 2K, but had to be edited on a pre-HD Avid. "We had to down-convert from 4K to HDCam, and then to DigiBeta in order to edit on an older Avid," he says. "Despite multiple down-conversions, it looked fabulous, after editing and color correcting."

Fortunately for Georgopoulos, many of his subsequent Red projects were edited in Final Cut Pro, which supports the camera. In fact, Apple partnered with Red Digital Cinema from the outset so that there would be a viable workflow pathway from 4K acquisition to output. As a result, loading footage into Final Cut Pro is much easier than with an Avid. "Red Code is wrapped with QuickTime," explains Georgopoulos, "so you can play and output lower-res proxies of 4K Red Code. These can be 2K, 1K or half-K proxies of the 4K footage which are then edited in Final Cut Pro 6." This greatly reduces the amount of storage required to edit 4K projects in an NLE, even when compressed as Red Code. "Still, you need the latest edition of Final Cut Pro (6.02) and the fastest Intel Mac possible - ideally, with quad processors - for decent speed. Many indies can't meet the specs without upgrading their

whole system. That's partly why I have to do so many demos for every Red job I get."

Across the continent in Toronto, DP D. Gregor Hagey has shot three projects to date with Red number 98, one of them also edited on an Avid. "We had to manually conform all the shots after editing offline because the Avid couldn't read the timecode in QuickTime files imported from Red. Luckily, it was a short project, but I won't edit Red projects on an Avid again, not until they add support for Red Code," he adds. His other two Red projects are being edited in Final Cut with comparative ease. "With Red Cine for outputting from Final Cut, editing is smoother. Red Cine reads the raw files and timecode and can export both as DPX or Pro Res HD files."

Monitoring with Red, however, remains a challenge, whether in 4K or even in 2K. Monitors in 4K aren't being produced yet, and 2K monitors are only available for the desktop. For field use, even true HD monitors are the exception, not the rule. For his Red projects, Hagey used Panasonic's 1700 HD field monitor with true 720p when shooting 4K. "Red has several monitoring options," he notes, "but you're limited to one at a time. We used the larger HD monitor for visual reference, plus a tape measure to focus and a light meter for exposure. The 17-inch monitor also helps establish the looks I want. So far, so good. But I won't know for sure until after the 4K online," he says.

Also in Toronto, DP Vinit Borrison of Magnet Film & Video uses Red's smaller LCD screen, also 720p, which clamps to the camera rails. "It gives you a full 1280 x 720 image plus camera status info in the margins, but it's a bit clunky for shooting off tripod. I can't wait for Red's 720p electronic (color) viewfinder for more maneuverability," he says.

Monitoring in post can currently only be done in 2K. Apple, Dell and others have large 2K cine computer displays, although 4K displays are rumored to be in development. ("Sony does make a 4K projector, but there aren't any in Toronto," Hagey notes.) This begs the question: if it is so difficult to see true 4K displayed, why go through all the bother to capture, edit and output it, particularly with 'true HD' display just becoming available? "If you want your project to have a 35mm film look, but don't have a film budget, Red is a great option," observes Hagey, "especially for theatrical. Also, if you've been working primarily in film and have a selection of film lenses, Red is a logical next step."

But what if non-fiction for the small screen is your game and you are accustomed to ENG-style cameras and shooting, with a skeletal crew at most? Does migrating to Red still make sense? Hagey, who also shoots docs, is ambivalent at this point. "With Red, you can under and over crank, up to 75 fps, and create different film looks with shallow depth of field, wide dynamic range and great color fidelity," he says. On the other hand, he finds shooting with Red more of a team effort. "Red is really designed for use like a 35mm film camera - with a film crew. At minimum, you need a camera assistant and soundperson," he warns.

However, he does see a distinct niche for Red in feature-style docs, especially those offering panoramic landscapes, architecture, aerials and the like, as well as for historical docs with dramatic re-enactments. "With Red you need more time to set up shots to achieve the beauty, color and impact of film. It isn't geared for fast-paced shooting, and long takes are currently a problem with the five-minute (at 4K) capacity of the 8 gb flash cards," he says.

The problem of limited recording time on the Red Ram cards may soon be solved, however. Georgopoulos has had first-hand experience with the newest Red solution: "I just started beta testing the Red Drive, which records more than two-and-a-half hours of Red Code at 4K, or 10-plus hours at 2K. This opens many new options, from timelapse to extended interviews. Red is also ideal for docs and other shows which rely heavily on stills, 35mm or larger. The 4K imager grabs successive 35mm quality

stills, which should match the image quality of archival photos better," he says.

Perhaps Red's greatest contribution may be on very large screens in a new medium like 4K 3D. More than a few prescient indie producers, like Pierre de Lespinois of Evergreen Films, are busy developing 4K 3D projects for the large screen using Red. "It's the next big thing in the 3D space," he offers. "Thousands of theaters across America will be offering 3D in the next several years and 4K is a logical next step. A pair of Reds [required for 3D capture] is much smaller and cheaper than anything else available. The question for me is how closely can they be matched, and the dynamic latitude of the image," he says.

De Lespinois sees other applications for material on smaller screens. "Red's wavelet technology is ideal for keying, matting, special effects and also compresses well for the Internet. It's a great cross-platform format. We'll use our Red cameras for non-fiction and dramatic projects once we finish testing," he says. "What I'm hoping is that it will be the breakthrough technology that takes us to the next level: 4K 3D tv and cinema and also broadband tv. The great thing is that it is still evolving. They listened to serious camera users and then made a camera that we all wanted. But, rather than saying 'Here it is. Hope you like it,' they keep listening and tweaking. So users keep getting emails with downloads for the new features. It's changing the production paradigm, because [at about $17,500] it will be accessible to so many," he concludes.

Red is also opening new opportunities for shooters and agencies alike in the stock footage market. FootageBank HD has launched a joint stock footage venture with the Digital Cinema Society, many of whose members use or will soon be using Red One cameras. Also, Mammoth HD recently opened the MHD/RED Library with a Format Comparison Chart comparing Red 4K images to HD and SD. They're now working with five Red shooters, but expect that to multiply as more Red Cameras are delivered. According to owner Clark Dunbar, "Feature film producers, advertising/marketing agencies, HD broadcasters and programmers, plus the digital display and 4K venue markets, have all shown a strong interest in footage shot with Red One. The value of Red footage is looking to be equal to, if not more, than 35mm film," he suggests.