

D-1 and DCRSi

The Present and the Future



Tracy G. Wood
Ampex Corporation

Under the auspices of the Society of Motion Picture Engineers (SMPTE) and the European Broadcast Union (EBU), committees consisting of professional broadcasters, media manufacturers and tape recorder manufacturers are developing a set of digital component and composite television recording standards based upon three standard 19mm cassettes. The technology involved is multichannel helical recording.

These D-1 cassettes and the recorders which will use them have motivated a new generation of digital instrumentation standards. The Naval Air Development Center (NADC) has generated MIL STD 2179 and the American National Standards Institute (ANSI), under the X3B.6 Committee, is developing a standard for general instrumentation purposes. Efforts are currently underway to merge these two efforts into a single digital instrumentation recording standard for a wide variety of applications.

In addition to being deeply involved with D-1, Ampex has been shipping limited numbers of its high density digital cassette recording system (DCRS) since early 1986 and will commence volume shipment of an enhanced version (DCRSi) which provides fully variable data rates, several different user interface options, a modular airborne configuration, and a rack-mounted laboratory companion unit during 1987.

The DCRS product has performed far better than previous generation instrumentation products in initial applications and is gaining rapid customer acceptance. The format is based upon high speed single channel transverse recording. It represents the only high density, high data rate cassette digital instrumentation standard product available today.

The advocates of the emerging D-1 class of instrumentation recorder cite many potential advantages over the DCRSi, such as lower cost due to several suppliers for media and recorders, higher data rates due to its multiple channel architecture, and longer record times due to the existence of a large cassette. Others cite the many inherent advantages for DCRSi such as compactness, environmental robustness and availability. The facts are that both have fundamental advantages, and ultimate selection should be application driven for any given program.

This paper will compare the underlying technology and expected performance characteristics for these two classes of machines. The specific advantages claimed for both D-1 and DCRSi will be explored in detail. The conclusions drawn will clearly show the significance of D-1 based data recorders for many emerging data recorder applications while also showing that envelope and environmentally driven applications may be better served by DCRSi-based data recorders due to significant inherent format advantages.