

Ampex steals show with digital VTR demonstration

Two Ampex engineers reported at the SMPTE winter conference in San Francisco on the company's progress in digital videotape recorder technology and demonstrated an experimental digital VTR at the final session on Saturday that grabbed the full attention of a packed house.

The engineers, Joachim Diermann and Maurice Lemoine, cautioned their audience that the experimental digital VTR is being used as a development tool in Ampex's laboratories and is not a product, or even close to becoming one. Diermann pointed out that many questions must still be answered before a practical digital VTR can become a reality. Among the questions are size, weight, operating cost, initial cost and total operating characteristics of a digital system.

At Ampex headquarters, Donald V. Kleffman, vice president and general manager of the audio-video systems division commented on this system. "This is a status report on an experimental recorder," he said. "And although its video performance is extraordinary, it is not a product and we are not even suggesting that the format we have chosen is close to ideal. We firmly believe that a practical digital videotape recorder that satisfies the real needs of the broadcast industry is not just around the corner; it will be quite a few years before such a recorder can become a viable product.

"We feel an obligation," Kleffman continued, "to keep the industry informed and to help it maintain a balanced view. This report and



Ampex engineers Maurice Lemoine, left, and Joachim Diermann captured a record SMPTE audience's rapt attention with a remarkable demonstration of digital video. The system was housed in a standard VPR-3 quadruplex VTR cabinet, but the electronics bay (below) in the base contained an impressive array of new PC boards to yield striking digital pictures.



Tape Format Parameters

Track width5 mils
Guard band2.5 mils
Head-to-tape speed1600 ips
Linear tape speed15 ips
Linear packing density27 Kbit/in
Number of lines per dual head pass16

demonstration serve that purpose. We hope that others will follow our example and give the industry further insight into the status of this technology, and we also hope to encourage the users in this industry to tell the manufacturers in turn what it expects to gain from digital TV."

The Diermann/Lemoine SMPTE paper represents the latest in a continuing series from Ampex reviewing Ampex's progress in digital video development. At last year's conference, Diermann gave a paper outlining the parameters of this system; this year he followed up with an operating system.

The digital VTR demonstrated at SMPTE used Ampex AVR-3 quadruplex VTR chassis modified for test

purposes and containing an impressive array of new circuit boards. The system had a special video head assembly with eight transducers and a writing speed of approximately 1600 ips. The digitized video signal was recorded on two channels with each channel accommodating a bit rate of 43 mbits/sec. The composite 525/60 NTSC signal was sampled at $3 \times f_{sc}$, and each sample was digitized into an 8-bit word. Linear packing density was 25 kbits/inch.

This experimental unit had a conventional tape transport and utilized standard quad videotape. Track width was 5.0 mils with a guard band of 2.5 mils. The longitudinal tape speed was the standard 15 ips. □

