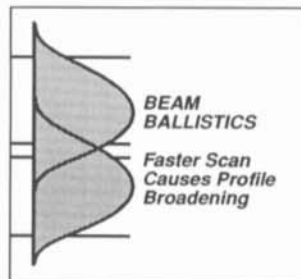


Highlights

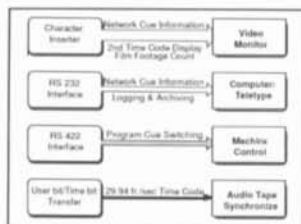
- 972 If Progressive Scanning Is So Good, How Bad Is Interlace?** • *L. J. Thorpe and T. Hanabusa* • While much HDTV equipment can indeed be made to function very well in progressive mode (assuming cost and extended bandwidth do not represent any practical impediment), the fact remains that the camera and VTR (the very basis of HDTV shoot and capture) are both subject to fundamental physical and technical limitations. This article discusses the effects of the nonideal beam spot, the low-velocity-beam interface with the photoconductive target, the self-sharpening effect of electron beam scanning, the astigmatism of the beam spot profile, and how all of these affect the three primary dimensions of the real-world television picture: horizontal, vertical, and temporal resolution.



- 987 Motion Estimation and Its Application to HDTV Transmission and Up-Conversion Using DATV** • *G. A. Thomas* • Motion compensation is a key technique in HDTV signal processing, both for bandwidth reduction and display field rate up-conversion. During the last few years, an effective motion-estimation algorithm has been developed by the BBC as a part of its contribution to the Eureka 95 HDTV project. In view of the promising results obtained by computer simulation, a hardware realization of the motion estimator has been built, allowing its performance to be assessed on a much wider range of picture material than would ever be possible by computer simulation. This article outlines the motion-estimation algorithm, describes the real-time hardware, and presents some of the first results obtained from the hardware.



- 993 A Time Code User-Bit Hierarchy for Multidisciplinary Applications** • *A. Du-Boyce* • In response to demands from various sectors of the broadcast industry, an SMPTE draft standard for time code user-bit coding has been submitted to the Working Group on Time and Control Codes (V16.25). This outlines a coding format in which user-bit applications from all parts of the industry would operate as application-specific subsets of an overall user-bit hierarchy. This article outlines some of the potential user-bit applications that would be made possible by the adoption of this hierarchy.

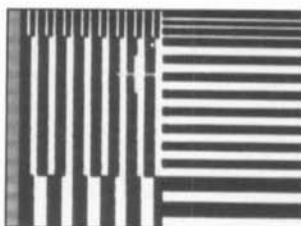


- 997 Getting More out of User Bits** • *S. Scott* • This article introduces the concept of a flexible directory-based multiplexing system for storing a variety of data in the user bits. This concept has been submitted to the Working Group on Time and Control Codes (V16.25) as a proposed SMPTE Standard with companion Recommended Practices. This system covers a hierarchy of applications using a common structure to allow many diverse applications to coexist with minimal conflict while sharing a common language of communications. Several applications, such as multicassette machine control, multiple time code operation, and storage of original production data, are discussed.

There are many applications that can benefit from a standardized format or procedure for the multiplexing of data into the user bits. The following are some of these applications.

- Multiple time codes
- Film footage and keycode™ numbers
- Source production data
- Titles and other production identification data
- Reproduction data
- Remote control commands

- 1001 Acceptance and Use of the SMPTE Medical Diagnostic Imaging Test Pattern for Television Monitors and Hard-Copy Recording Cameras** • *J. E. Gray, K. G. Lisk, W. Anderson, J. H. Harshbarger, R. Schwenker, and R. A. Uzenoff* • In 1986 the SMPTE published a Recommended Practice (RP 133) specifying a test pattern for medical imaging applications, which has enjoyed wide acceptance in the medical imaging community. Use of the test pattern for acceptance testing, video monitor and image recording device setup, and quality control is described, and examples of problems detected with it are presented.



- 1008 The 300D Digital Video Color Film Analyzer: A Logical Use of the Best of Today's Technologies** • *H. Teitelbaum, A. Arbeeny, and M. Levine* • The HFC 300D Digital Color Film Analyzer is described. It features the stability of digital controls, coupled with the advantages of an analog video signal, to provide accurate, expanded resolution image with enhanced signal-to-noise capabilities while maintaining a "film-like" look and the capability for viewing film in motion.

