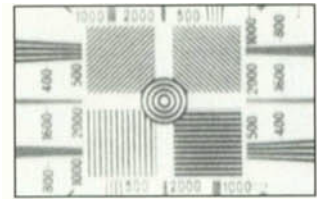
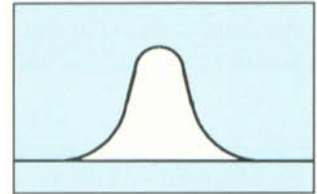


# Highlights

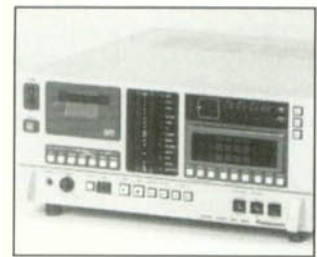
- 532 A Three-CCD HDTV Color Camera** • *Y. Ide, M. Sasuga, N. Harada, and T. Nishizawa* • The development of an HDTV color camera employing three 2-million-pixel charge-coupled device (CCD) image sensors is described. One unique characteristic of this camera is its high sensitivity, achieved by imaging devices overlaid with amorphous silicon. The horizontal-CCD (H-CCD) registers are driven by a switching resonance method, which consumes only one-fourth the power required by the conventional voltage-buffer driving method.



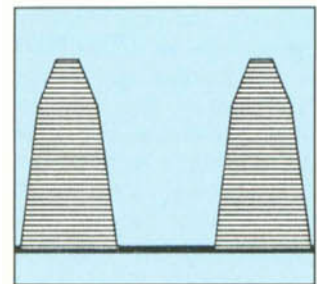
- 538 High-Definition Transmission, Signal Processing, and Display** • *W. E. Glenn and K. G. Glenn* • The transmission, signal processing, and display of HDTV can benefit if visual perception is completely understood. This information is used in the design of a reduced-bandwidth compatible transmission system and a progressively scanned camera and display for improved vertical resolution without interline flicker. Its application to the development of a solid-state light-valve HDTV projector for theater and consumer use is also discussed.



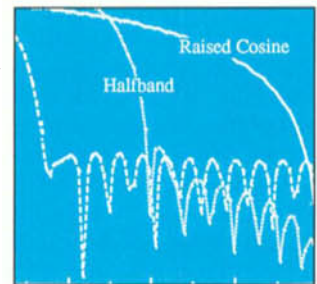
- 542 A Professional DAT System** • *T. Ueno, R. A. Finger, K. Nagai, Y. Nakajima, and M. Okamasa* • This article is concerned with a time code recording method for professional digital audio tape (DAT) and a two-channel professional DAT system. SMPTE/EBU/film time code is converted into pro running time and is recorded onto tape. The professional DAT system consists of a studio DAT recorder, an editing controller, and a portable DAT recorder. The studio DAT recorder incorporates professional functions, such as read-after-write, recording and playback of SMPTE time code, assemble/insert editing, chase synchronization, and variable speed. The editing accuracy is  $\pm 30 \mu\text{sec}$ .



- 554 Digital Video Signal Transcoding** • *P. J. Bernosky and P. G. Salazar* • Digital component video is useful in applications that generate or process video in digital component form. Paint systems and special-effects devices are good examples. Digital composite video has advantages in storage and distribution due to the comparably reduced bit density, and implementation because of compatibility with existing analog composite facilities. The gap between the two digital families can be bridged with a digital format translator. Translation is not simple and carries penalties that are not usually expected in digital environments. The process of conversion between 4:2:2 component and  $4f_{sc}$  composite is outlined, with some discussion on the associated problems.



- 559 A Digital Augmentation Approach to HDTV** • *S.-B. Ng* • A digital augmentation system, in conjunction with extended definition television (EDTV), such as advanced compatible television (ACTV), that delivers full HDTV resolution of 675 lines per picture height (l/ph) horizontally and 800 l/ph vertically, is described. At the heart of the system is a subband encoder using quadrature mirror filters (QMF) and a statistical encoder to digitally reduce the data rate requirement by a factor of 20 to 1. The system was simulated on the computer using high-detail motion sequences as test images. It is suitable for transmission over any digital link of approximately 20 Mbit/sec data rate. Results from recent experiments on improving the system's strength are also reported.



- 565 The PFWM Fiber-Optic Transmission System for HDTV** • *S. Morikura, N. Okamura, and K. Kubo* • A new pulse-analog technique has been developed for the transmission of high-definition TV (HDTV) component signals on an optical fiber: pulse frequency and width modulation (PFWM). With this technique, three component signals are multiplexed into one pulse train, in which the frequency is varied in proportion to amplitude of the luminance signal and width, alternately, to the amplitude of two chrominance signals. This results in a compact and low-cost HDTV transmission system. The PFWM fiber-optic transmission system and its performance are described in this article.

