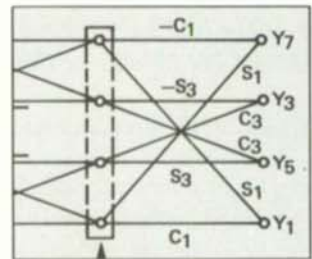


Highlights

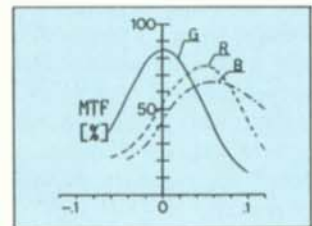
- 636 High Picture Quality Technologies for an S-VHS Portable VCR** • *M. Oku, I. Aizawa, N. Azuma, S. Okada, K. Hirose, and M. Ozawa* • Because of their high picture quality and low cost, S-VHS videocassette recorders (VCRs) have become popular in the growing professional video community. This article considers several technological improvements for higher picture quality, the main design goal of a new portable VCR. These include advanced metal heads and cylinder-mounted preamplifiers to improve carrier-to-noise ratio and a digital signal processor, including a time base corrector and a chrominance noise reducer, to improve the clarity of the reproduced picture.



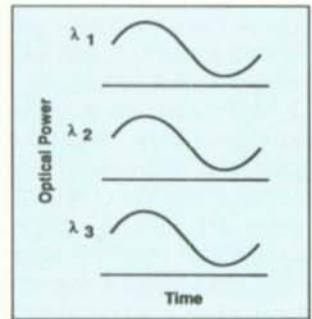
- 640 DCT-Based Television Codec for DS3 Digital Transmission** • *S. Cucchi and F. Molo* • An intrafield codec based on discrete cosine transform (DCT), and foreseen for transmission of NTSC video signals at DS3 line bit rate, is described. The codec is provided at the input (encoder) and output (decoder) with an interchangeable interface so that it can be used also for the 4:2:2 studio standard transmission. In the case of the NTSC video signal, after the analog-to-digital (A/D) conversion, the signal is split into three component-like signals, to which a two-dimensional 8×8 DCT is applied. The DCT-processed samples are then coded for transmission using a variable-length coding.



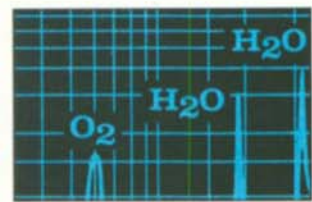
- 647 Standardization of Design Parameters for CCD Camera Lenses** • *K. Ohnishi* • The use of charge-coupled devices (CCDs) in video cameras has increased the difficulty of achieving interchangeability among camera lenses. In the three-CCD camera, the *R*, *G*, and *B* CCDs are fixed on the prism blocks, and all lenses must focus precisely on each CCD faceplate. To maintain interchangeability, optical design parameters for lenses and camera optical systems must be standardized. This article describes the need for, content of, and discussions concerning this standardization.



- 651 Transmission of HDTV and Audio Signals over One Single-Mode Fiber** • *P. S. Natarajan, P. S. Venkatesan, M. D. Austin, J. Orost, and C. G. Forbes* • Until recently, equipment available for fiber-optic transport of high-definition television (HDTV) over limited distances has used three separate fibers for transmission of the color components and a fourth for audio. Shortcomings of this approach are poor color registry, resulting from differences and variations in propagation delay, and the high cost of providing multiple fibers. This article describes the transmission of uncompressed HDTV signals and digital audio on one single-mode fiber incorporating components available today, such as wavelength division multiplexing and pulse-frequency modulators. Critical measurements made on a laboratory model to verify systems analyses are reported.



- 658 Propagation Phenomena and Terrestrial Interference in Satellite Television Transmission** • *R. M. Burkhart* • Each of the primary sources of natural (not man-made) satellite interference is explained here, as is terrestrial interference in satellite communications. Two typical video downlinks (one at C band and one at Ku band) are used as references for quantified comparisons of degradation levels for each interference type. Simple analogies are presented to allow the layman to gain a better understanding of these complex interference mechanisms.



- 668 Special Preview of 131st SMPTE Technical Conference and Equipment Exhibit** • *Los Angeles Convention Center, Calif. • October 21–25, 1989* • The 131st SMPTE Technical Conference and Equipment Exhibit is almost here. Plans for the upcoming conference, to be held Saturday, October 21, through Wednesday, October 25, 1989, are well under way for this important event, which will take place at the Los Angeles Convention Center in California. Program Co-Chairmen Baptista and Godber have arranged an interesting and informative program focused on the theme "Technology and Tradition — Partners in Progress."

