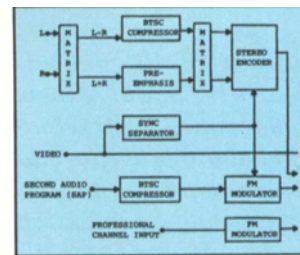


# Highlights

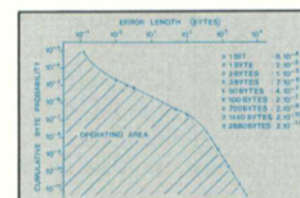
- 1134 The BTSC Multi-Channel Television Sound System • C. G. Eilers •** The BTSC multi-channel television sound (MTS) system provides for a full 15-kHz audio response stereo pair with low distortion and signal-to-noise ratio (SNR) equivalent to the monophonic audio component. A second audio program channel with a 10-kHz audio response at reasonably low distortion and an SNR slightly inferior to the monophonic main program, and a professional channel for use by the broadcaster are also provided. More than 150 TV stations have gone on the air with BTSC MTS since FCC authorization on April 23, 1984, and two major networks are providing programs in stereo sound.



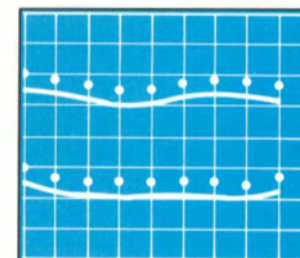
- 1139 The User Requirements for the 4:2:2 Component Digital VTR • W. C. Nicholls •** This article details the requirements drawn up for the future 4:2:2 component digital VTR by the SMPTE Digital Ad Hoc Users' Group. Written from the perspective of a member, it describes how the group determined various parameters for the 4:2:2 VTR, and answered many user-related questions. A report was prepared specifying those items which had a direct impact on the format and the design of the tape cassette. The format is now known as the SMPTE Type D-1 Format for a Digital Tape Recorder, and is based on CCIR Rec. 601, the 4:2:2 standard.

With reel-to-reel recorders, the approach to labeling has usually been informal. For the D-1 machine, the users wanted to make the cassette label part of the system. Most felt that cassette storage with one of the short ends facing front would be the most efficient use of space and therefore a label would be put on one end. Since many DTTRs will use a bar code for automatic control, provision was made for this also. The report allows

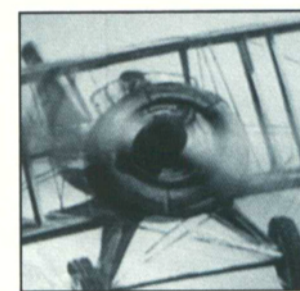
- 1144 The SMPTE Type-D-1 Digital Television Tape Recorder — Error Control • J. H. Wilkinson •** This article will explain the method of error control employed in the SMPTE D-1 digital television tape recorder (DTTR). It starts with an outline of the fundamental aspects of information engineering, and follows with a description of the error-control scheme objectives. The nature of redundancy against error-correcting power is explained, together with the constraints set by the operational requirements of slow-motion and high-speed shuttle replay.



- 1150 Differential Gain and Differential Phase in Satellite TV Transmission • D. Chakraborty and A. F. Elrefaie •** This article describes the manner in which an experimental investigation of the effect of transponder pre-equalization in direct broadcast satellite (DBS) transmission has been carried out. Resulting differential gain (DG) and differential phase (DP) have been measured both with and without the transponder equalizer in the up-path chain for different combinations of the earth station high-power amplifier (HPA)/transponder traveling wave tube amplifier (TWTA) input backoff (operating level below single-carrier saturated level) using NTSC signal format.



- 1158 Recent Development of a Broadcast-Quality CCD Camera • S. Ikeda, S. Yamamoto, A. Kohno, T. Kamata, M. Shimizu, and R. Dienhart •** The use of CCD technology in broadcast-quality cameras has led to practical applications that offer many advantages over pickup tubes, including smaller size, lighter weight, greater durability, lower power consumption, and absence of burn-in, comet tails, and sticking. Two problems with the use of CCDs have been vertical smearing when shooting bright subjects and lower resolution than with pickup tubes. A camera having an improved solid-state image sensor which virtually eliminates vertical smearing, and a Dual Green system which brings resolution equal to the level of that delivered by pickup tubes has been developed.



- 1166 Graphic Scaling of Qualitative Terms • B. L. Jones and P. R. McManus •** This article describes an investigation carried out to determine the perceived intervals between the successive descriptive terms on subjective picture and sound quality category scales. This study involved participants in five geographical areas of the U.S., and also in Rome, Italy, (in the Italian language). The intervals were found to be regular, and the meanings of the words were found to vary only slightly with geographic region and culture. It was concluded that these category scales are ordinal, not interval, in nature, and that interval or ratio scales should be used when the "distances" between test stimuli are under examination.

