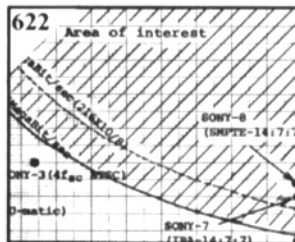




## HIGHLIGHTS



### Considerations in the Choice of a Digital VTR Format

Hirofumi Yoshida  
Takeo Eguchi

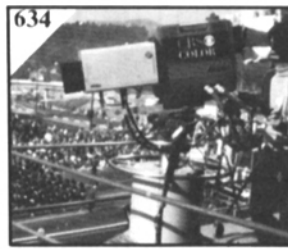
A consensus has now been reached on coding standards for digital video recording. The paper qualitatively analyzes various options and trade-offs relating to the choice of a format in digital high-density magnetic recording. These include: factors affecting tape consumption, relations among the factors that place constraints on the tape format, and the formats that are possible. Also discussed is the azimuth recording method. It is pointed out that substantial improvements are still being made in the evolving analog VTRs, so that much care should be given to the choice of the practical format for digital VTRs.



### NTSC Color-Field Identification

Charles E. Spicer

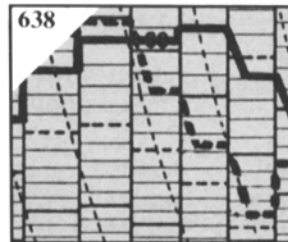
There are four different color fields in an NTSC color signal, which are exactly defined by EIA RS170A. This paper argues that field identification derived from a comparison of horizontal sync, vertical sync, and subcarrier will always have an ambiguity of field identification. It further argues that if the video signal had an independent identification of color field, the system subcarrier phase could then be adjusted correctly in relation to horizontal sync at every source. An appropriate independent field identification flag would also provide the means to measure accurately the sync to subcarrier phase relationship using only a standard waveform monitor. Broadcast manufacturers of videotape equipment and digital equipment presently claim color-field recognition based on measurement of SCH (the sync to subcarrier relationship). It is suggested that an independent identification of the proper color field, irrespective of SCH, is the ultimate solution to the problem.



### Triax Cameras: A Decade of Experience

Alan J. Keil

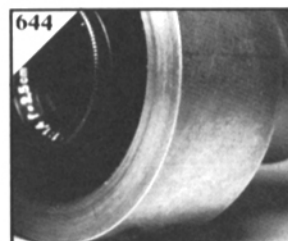
The first triax camera (the PC-100) was introduced to the broadcast industry in 1969. It was designed to solve a number of problems associated with conventional multicore cable cameras. A second-generation triax camera, the LDK-5, was introduced in 1975. It offered additional capabilities and was selected by ABC for three mobile units. A narrow-bandwidth digital control channel is used for microwave applications. The microwave configuration was ruled out, however, for the 1980 Winter Olympics, and a triax repeater was designed and used for this location. The compact, lightweight EFP LDK-14 camera was designed for easy conversion to triax.



### Perceived Frequency Response in Small and Medium-Sized Rooms

Henrik Staffeldt  
Erik Rasmussen

The perception of timbre evoked by sound reproduction in a room has been studied in a series of listening tests. The results indicate that equal timbre of sound reproduction in two different rooms can be obtained if the two systems produce equal steady-state  $1/3$ -octave spectra at the entrance of the listener's ear canal. The often-encountered high-frequency roll-off seen on frequency-response curves of loudspeaker-room systems originates from diffraction phenomena at the head and external ear. The diffraction is described by the amplitude characteristics of the head and external ear.



### Image Steadiness in 16-mm Motion-Picture Cameras

Wu Ji-Zong,  
R. N. Norman, J. F. Carson

Frame-to-frame image registration errors in a 16-mm cine camera can be measured directly by the moiré fringes formed by a double exposure of a Fresnel zone pattern target. A simple instrument incorporating a target and lens that attaches directly to the camera under test was designed and built. If the Fresnel zone pattern images are displaced with respect to one another, linear image registration errors are converted into angular motion of the fringes; it then becomes possible to separately analyze in-track and cross-track errors. The necessary displacement between exposures is provided by the rotation of an off-center target.