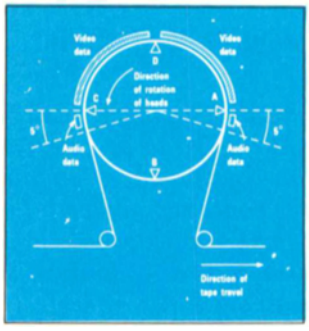
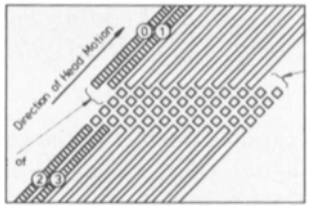
Highlights

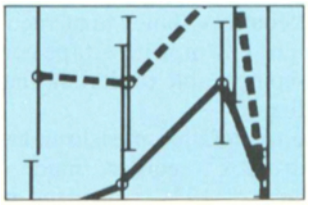
1206 **Digital Television Recording—History and Background** • *J. L. E. Baldwin* • In the development of digital television recording, many interrelated issues needed to be resolved. This article attempts to give the relevant history of the process to improve understanding of the decisions made or of the concepts involved. Probably the most important concept, without which agreement would have been impossible, was that the format of the digital recording laid on the tape should be defined, rather than the format of the recorder itself. Other concepts introduced include the self-contained segment, segments in a field, the two/four-channel approach, gap-in-the-middle, distribution of words between sectors and within sectors, channel coding and randomization, error correction and concealment, and overlap editing.



1215 **Electrical System Design for the SMPTE D-1 DTTR** • *J. K. R. Heitmann* • The design of the electrical system for the D-1 digital television tape recorder (DTTR) was developed after that of the mechanical system. This article describes the process of finding the best solution for synchronization, error protection, and video/audio sample distribution. Following an explanation of video segments and video sectors, the distribution of the four audio signals is discussed. The tracking control record is also explained.

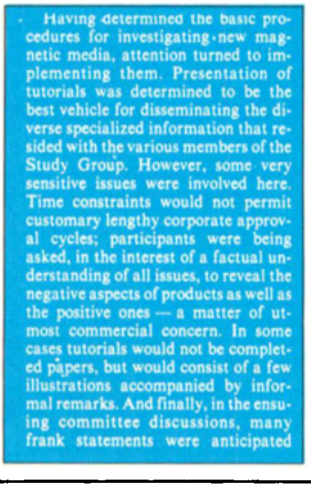


1222 **Picture-Quality Criteria, Error Statistics, and Error Correction for the D-1 Format DVTR** • *J. P. Watney* • This article examines some of the experimental results and engineering judgment calls that went into estimating the bit error rate statistics that might be expected from tapes to be used in the D-1 format DVTR. Error concealment and misdetection rates that would be acceptable to the user are also discussed. Knowing the gap between what is available and what is required allows specification of the error-correction system that will bridge the gap.



1230 **Quantitative Evaluation of Eye Movements as Judged by Sight-Line Displacements** • *M. Yamada and T. Fukuda* • An eye-movement analyzer, the Vision Analyzer, has been developed for the objective study and evaluation of various psychological effects caused by diverse television images, as well as the experimental results obtained with the use of this device. Analysis of the HDTV image proves that the effects of HDTV's fine-structured, wide-screen images are advantageously reflected by the actual sight-line displacements of the eye. The other analysis of the moving image shows that the sight line can accurately follow the image only during approximately 30% of all cases at most, under the condition that the image is moving at an angular speed of no more than approximately 5°/sec.

1242 **SMPTE Study Group on New Magnetic Media: Report on Activities and Status, October 1986** • *R. G. Thomas, Chairman* • By mid-1985, a maturing technology that had just brought new videotape magnetic coatings to the consumer field was beginning to receive serious consideration from professional users. Specifically, metal particle (MP) tape, which had pervaded the consumer 8mm VCR market, was now being proposed for adoption in the new M-II professional format. Although broadcasters had been previously introduced to MP tape during earlier deliberations on ¼-in. VTR format standardization, such was the doubt and controversy among the participants of that group regarding the suitability of MP coatings in tortuous ENG environments, that it was eventually dismissed from consideration. However, as one of the final acts of the ¼-in. Working Group, a recommendation was made for continued study of MP tape in professional applications. It was from that recommendation, coupled with a desire to investigate the properties of other new tape coating materials, that the SMPTE Committee on Video Recording and Reproduction Technology (VRRT) established a Study Group on New Magnetic Media, the findings of which are reported here.


Having determined the basic procedures for investigating new magnetic media, attention turned to implementing them. Presentation of tutorials was determined to be the best vehicle for disseminating the diverse specialized information that resided with the various members of the Study Group. However, some very sensitive issues were involved here. Time constraints would not permit customary lengthy corporate approval cycles; participants were being asked, in the interest of a factual understanding of all issues, to reveal the negative aspects of products as well as the positive ones — a matter of utmost commercial concern. In some cases tutorials would not be completed papers, but would consist of a few illustrations accompanied by informal remarks. And finally, in the ensuing committee discussions, many frank statements were anticipated