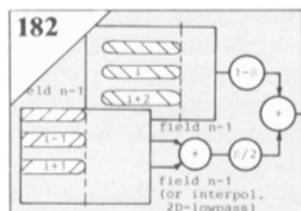
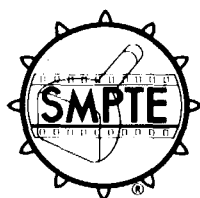




HIGHLIGHTS



Signal Processing for New HDTV Systems

B. Wendland and H. Schröder

In new television applications, such as interactive videotex, still picture

transmission, or where larger, brighter screens are used, improved resolution and flicker-free reproduction are necessary. Picture quality can be improved compatibly by motion-adaptive pre- and post-filtering in combination with picture framestores. This article proposes a new approach for a hierarchical signal-processing scheme where different standards are used for production, transmission, and reproduction. This standard conversion offers inexpensive compatibility through use of simple adapters for different receiver qualities.



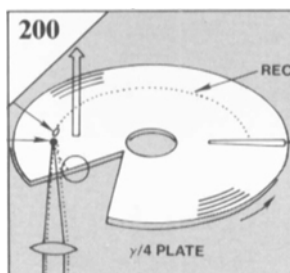
190

Picture Quality Compensation System Based on Brightness Polarity

H. Sakata

The spatial frequency response of vision fluctuates with positive brightness

polarity, a white figure against a gray background, and negative polarity, a black figure against a gray background. This article describes psychophysical experiments showing that the line spread function of positive polarity always exhibits negative response at the surround. The line spread function of negative polarity exhibits positive polarity response at the surround at a low contrast and disappears at a high contrast. Picture edges glare when the compensation amount of a contour compensation circuit for a positive-negative symmetric picture increases because the edges of positive polarity are enhanced excessively. A circuit independently controlling contour components of positive polarity and negative polarity was made to perform picture-quality evaluation experiments. The experiments confirmed that picture quality is improved by a 0.5 step (using the 5-step rating scale evaluation) as compared with the conventional positive-negative symmetric waveform compensation circuit, and improvement can be achieved even under conditions of ambient lighting.

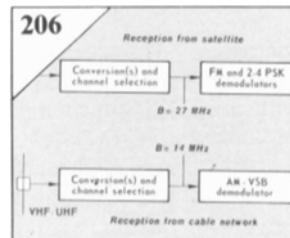


200

Optical Disk Technology for Permanent and Erasable Memory Applications

K. Sadashige and M. Takenaga

Digital recording on a state-of-the-art magnetic memory is now achieving an area density of 10 mm square for one flux reversal. Use of a defraction-limited laser beam spot applied to an optical memory can reduce the area requirement by a factor of 10 or more. The advent of nonreversible and reversible process optical memories creates the possibility of applying this technique to the design of a high-density, broadcast-quality video recorder.

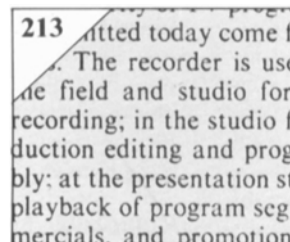


206

Distribution and Broadcasting Satellites: European Projects and Problems

R. Gressmann

The status of broadcasting by satellites in Europe and the need for a single transmission standard are discussed. The proposed C-MAC/packet system, with its improved sound and picture quality and its capacity for future enhancement, is described in detail. European cable distribution and specific projects are also discussed.

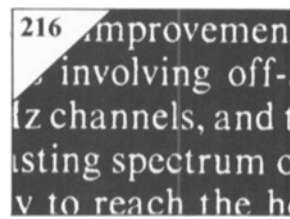


213

The New Generation Television Recorder — Broadcaster's Perspective

K. P. Davies and M. Auclair

The television recorder is an essential piece of equipment to the broadcaster. This article examines the requirements, from the broadcaster's perspective, for the next generation of recorder. Major considerations discussed are operational environment, signal formats, production features, recording media, technical performance, and human concerns.



216

From Studio to Home — How Good Is the Electronic Highway?

A. G. Day

The TV picture currently delivered to the home is vastly inferior to the studio-quality picture that is transmitted. This article reviews the constraints imposed by current TV delivery systems and the alternatives now known for delivery of pictures in the future. Possibilities for future improvement include cable or fiber-optic systems linked by terrestrial microwave or satellite channels, direct-broadcast satellite services, and recorded media.