

ABSTRACTS OF PAPERS FROM OTHER JOURNALS

Properties and Applications of Some Periodically Varying Digital Signal Processors, K. M. Wong, V. K. Aatre and M. Ramamurthy, *IEE Proc.*, 128: 74-82, Part F, No. 2, Apr. 1981.

A situation often encountered in a communication system in which a digital interpolation filter is followed by a sinusoidal modulator is considered. A mathematical model of the system is developed and some useful properties are derived. These properties lead to an equivalent realization of the interpolation filter and the subsequent commutation of the filter with the modulator. Applications to digital single side band generator designs are described and it is shown that these properties explain why the complexity of the designs can be reduced.

Sampling Rate Synchronization of Digital Sound Signals by Variable Delay, N. H. C.

Gilchrist, *EBU Review*, 183: Technical Part, 222-226, Oct. 1980.

In a situation where a number of digital sound signals, all from sources operating at nominally the same sampling frequency, need to be processed, a variable delay technique may be used to synchronize the signals at the input to the processor. This article describes experimental equipment which changes the sampling rate of a digital sound signal by using a variable delay which is automatically reset during pauses in the program. Listening tests have indicated that the adjustment of sampling rates by a small amount using this technique can be achieved with little or no impairment to the sound signal.

An A/D Converter for High-Definition TV, Yuichi Ninomiya, *J. Inst. TV Engineers of Japan*, 35: 129-135, No. 2, 1981.

An analog-to-digital converter has been

developed for high-definition television (HD-TV) use. The basic configuration of the converter is serial-parallel in three stages. The newly developed A/D converter shows the following characteristics: sampling frequency, 100 MHz; level resolution, 8 bits/sample; input level, $1V_{pp}$, 75 ohms; linearity error, less than $\frac{1}{3}$ LSB; S/Nq (quantizing noise) at input frequency of 24.3 MHz; -4 dB of theoretical value at full level input, -2 dB theoretical value at -16 dB of full dynamic range input; DG (differential gain), less than 1.5% at 30% subcarrier level, where the subcarrier frequency is 24.3 MHz and the sampling signal not locked to the subcarrier.

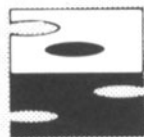
VT80: ITN's New Computer Graphics Generator, Paul McKee, Chris Long and Terry Corbyn, *Television: The Journal of the Royal Television Society*, 18: 21-23, Jan./Feb. 1981.

Video Tape Editors. Make frame-accurate edit decisions in still-frame and slow-motion.

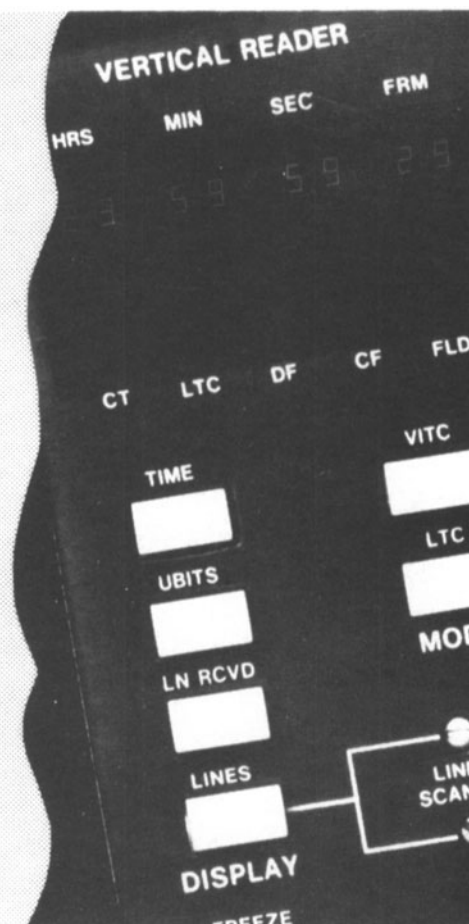
The Model 2602, when added to any SMPTE/EBU time code-based video tape editing system which uses helical scan VTRs, will record and read time code in the vertical interval of the video signal so the code can be used during editing to make decisions, even when the tape is stopped.

User bits and color frame field data can also be recorded, read and used. Switch-over to either longitudinal time code or control pulse updating is automatic if a tape ever moves too fast for the vertical interval time code to be recovered.

When the Model 2602 is added to an editing system, operating procedures do not change, and no hardware or software modifications are required. The audio track usually used for longitudinal time code can often be re-assigned for another use.



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In short, the Moviola console editors are a superb design, magnificently built. I extend my sincere gratitude to you and your colleagues for your generosity in supplying the editors -- greatly assisting us with the preparation of the 1981 Los Angeles International Film Exposition.

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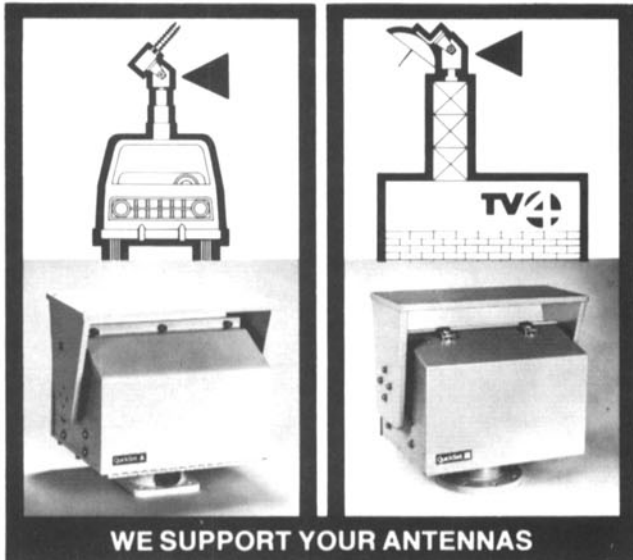
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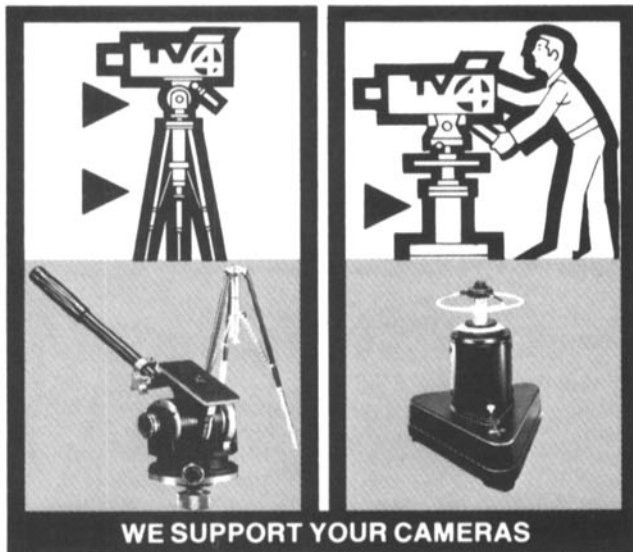
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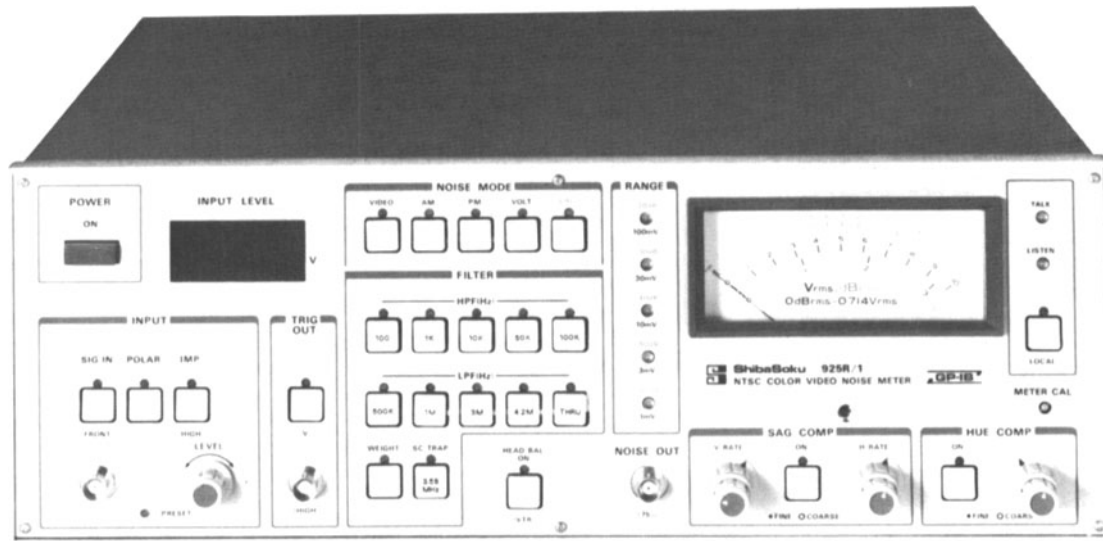
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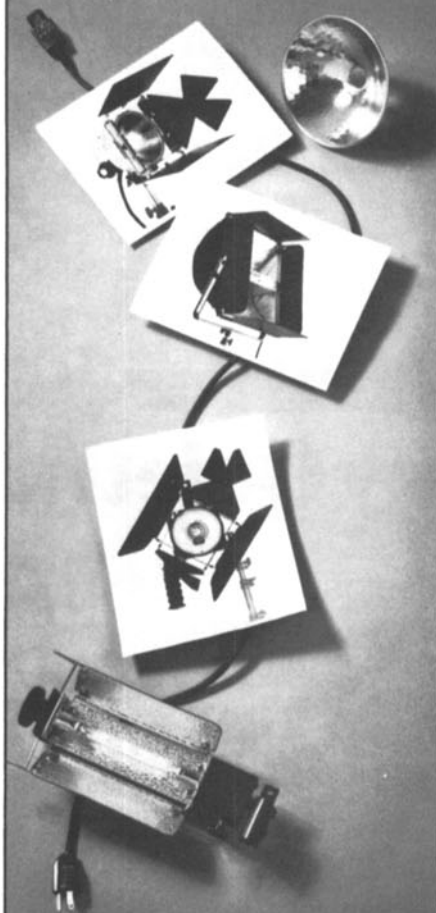
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The use of character generators which enable high quality text to be electronically generated without any camera involvement is a familiar part of television production methods. Somewhat less familiar is the use of computer driven graphics generators which enable more generalized shapes as well as lettering to be incorporated in a displayed picture. The advantages of such graphic generators lie in the speed at which they can respond to new information and the speed at which displays can be generated. Both of these capabilities stem, in part, from the fact that such devices are normally driven by general purpose mini-computers which are capable of simultaneously handling the organization of the information required to be displayed and manipulating the appropriate commands for the graphics generator. One further advantage of these devices is that the speed at which displays can be generated is such as to enable a degree of animation to be incorporated within displays. This is achieved by successfully generating displays which differ slightly from each other; hence, to the viewer it appears that movement has occurred, e.g. the columns in a block diagram have risen or fallen. The speed of response of such devices makes them ideal for use in programs dealing with large quantities of numeric information which can be summarized in diagrammatic form, e.g., general election programs.

Capturing the Living Image: The Impact of Technology on TV, F. Howard Steele, *IEEE Proc.*, 128: 9-17, Part A, No. 1, Jan. 1981.

The recent developments in TV technology are reviewed and it is seen how, since World War II, it has been possible to design progressively lighter cameras and signal processing equipment, increasing the convenience of TV production in general and particularly outside broadcasts and ENG. Transistors, which began to replace vacuum tubes in the 1950s and, more recently, charge coupled devices, have played a considerable part in the technological changes described. Recording techniques have also been very much improved over recent years, and a very economical packing of digitized signals on a tape of convenient size has been achieved. Editing videotapes is now possible without the need for a computer-type magnetic store. The author foresees a continuous development of TV broadcasting techniques in the future.

Impact of Modern RF Power Semiconductors on Television Transmission, J. C. Paillaugue, *Television: The Journal of the Royal Television Society*, 18: 27-29, May/June 1981.

Broadcast transmitters, once massive complexes of circuitry built around thermionic valves, have benefited from developments in the field of transistors and integrated circuitry. The use of semiconductors has not only saved space and re-

duced maintenance requirements, but has also led to an improvement in performance. For optimum efficiency, of course, the new components must be integrated into a complete design for the transmitter and other elements in the signal network. To simplify this process, electronics manufacturers are now likely to produce complete amplifier modules.

Fiber Optics and Optical Communications, William Caton, *Optical Spectra*, 14: 42, Nov. 1980.

Fiber optics, praised for their inherent immunity to electromagnetic interference, have been chosen for the command and data links in a new simulator being built to test the ability of advanced communications systems to withstand the high energy electromagnetic pulses (EMP) that accompany high-altitude nuclear explosions. An examination is made of why optical fibers were selected for the EMP simulator as well as how they are expected to perform.

The Measurement of Teletext Performance Over the United Kingdom Television Network, L. A. Sherry and R. C. Hills, *Radio and Electronic Eng.*, 50: 503-518, Oct. 1980.

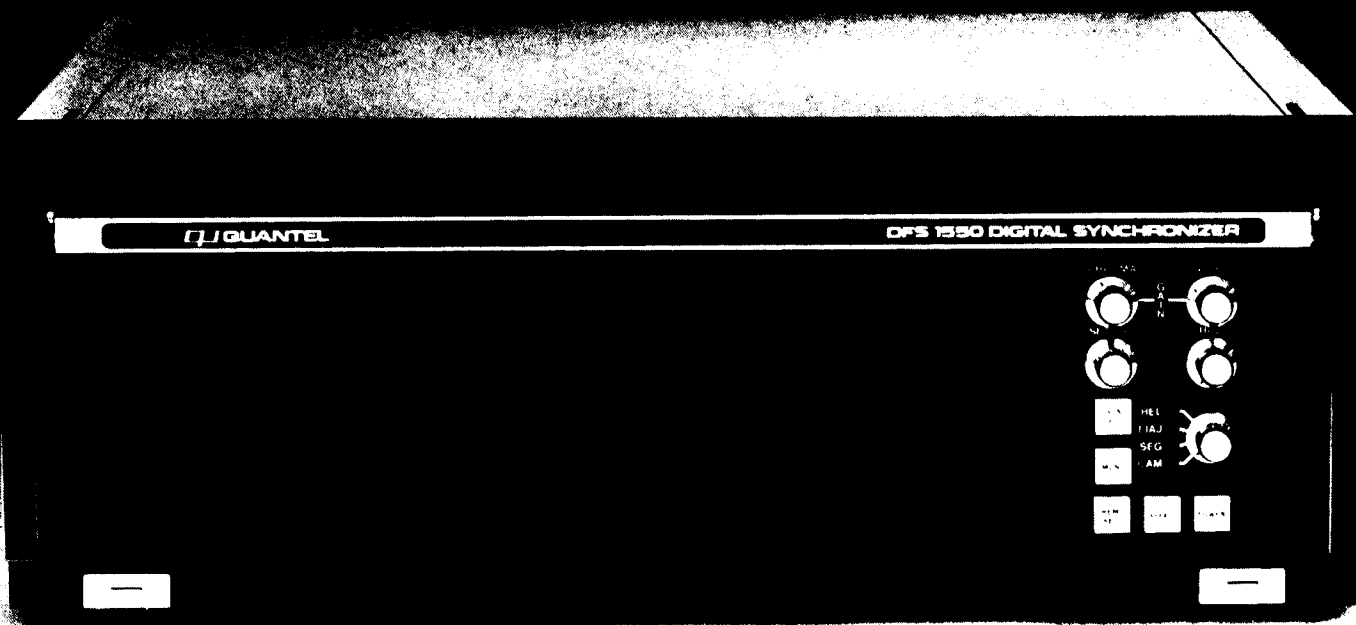
This paper summarizes the results of extensive teletext field trials conducted in the UK between March 1976 and March 1978. Consideration is given to the teletext performance of the UHF television network, the extent of reception in the homes of viewers, and the performance of teletext decoders. The results indicate that the service will be predominantly field-strength limited provided viewers use well-installed outdoor antennas.

It is suggested that data regeneration may be used to advantage to ensure the highest possible standards of radiated performance from certain stations. This is because, to a large extent, transmitter group delay errors become more significant for teletext than for television. The paper concludes that an adequate teletext service is available to a high percentage of the existing television audience provided production receivers have a decoding threshold approaching 25% eye height. However, it is noted that many current production receivers fall considerably short of this performance.

Management of the Engineering Function in the IBA, A. W. Pragnell, *IEE Proc.*, 127: 620-624, Part A, No. 9, Dec. 1980.

The Independent Authority is a body with a number of different yet interrelated functions. This paper is an account of the IBA organization and practice in each of the main engineering areas in which the Authority has statutory responsibility. During a period of great technological change a program of retraining, combined with good communications between management and engineers, has made rapid expansion possible without significant staff increases.

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