

# Abstracts of Papers From Other Journals

Abstracts of papers appearing in other journals are, from time to time, published in the SMPTE Journal. The abstracts are chosen for their importance and possible value to researchers as well as for their timely interest.

**Gas Discharge Panels for Color TV Display**, *NHK Technical Monograph*, No. 28: 1-47, Mar. 1979.

With the objective of developing flat panel displays suitable for a high definition, wide screen, television system, the NHK laboratories have conducted research on possible gas-discharge display panels and on systems for receiving color television pictures. Most intensively studied was a display system in which three primary-color phosphors are excited by ultraviolet radiation generated in the discharge space. Results are described, derived from studies of problems relevant to UV radiation gases, phosphors, gas-discharge cells, and driving methods — all important elements in the makeup of the display system. A helium-xenon mixture was found most suitable for the filling gas in that it allowed an

excitation wavelength of 147 nm to be used in the vacuum ultraviolet (VUV) band of the spectrum. New red, green, and blue phosphors were developed, achieving a high quantum efficiency for the VUV radiation from xenon; they have excellent hue and saturation. Innovations were also made in gas-discharge cell structure and panel driving methods. Two experimental panels were fabricated based on the basic studies and were used to demonstrate a color TV display. One is a planar positive column (PPC) 10-in panel, the first ever based on this principle. The other is a thin-center sheet (TC) 16-in panel with an improved Burroughs-type structure and two-lines-at-once driving scheme; this is the largest flat panel color TV display ever made. Both panels give excellent picture displays in color television picture receiving experiments.

**The Digital Recording of Sound in Broadcasting**, A. Weisser, *EBU Review*, 173: 2-9, Feb. 1979.

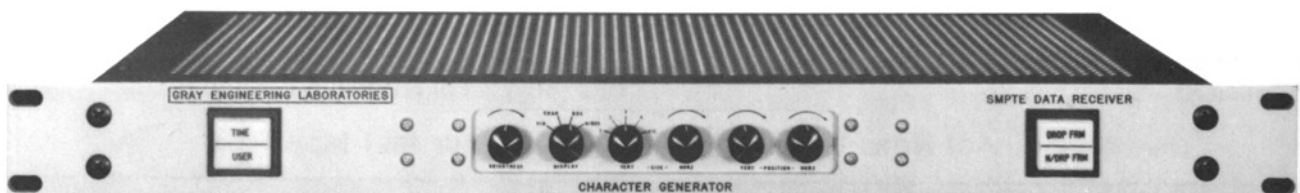
Taking into account the current applica-

tions of tape machines in sound broadcasting, a brief outline is given of the advantages and disadvantages resulting from the introduction of digital techniques in the magnetic recording of sound, together with the interfaces that would have to be provided with other equipment involved in the preparation of a program. The parameters that influence the quality and the cumulative effects of the various production operations on this quality are also examined. The optimum values for the sampling frequency and the quantizing are studied next, taking account of the constraints imposed by the structure of the program chains. Finally, the principle of a method for error protection applicable to digital recording is described.

**A Computer Evaluation of Colorimetric Effects of Differential Gain and Differential Phase Distortions in Color TV Receivers Having Phosphors and Demodulation Matrices Different From NTSC**, T. M. Wagner, *RCA Review*, 40: 3-21, Mar. 1979.

The impairment of the television picture due to differential gain and differential phase distortions is discussed. A method of deriving numerical values that are more closely related to picture impairment is described. The measurement of these distortions in television receivers is treated. The effect of the shape and magnitude of the differential gain and differential phase distortions on the color rendition of the displayed television picture is shown on a few examples. A computer program for

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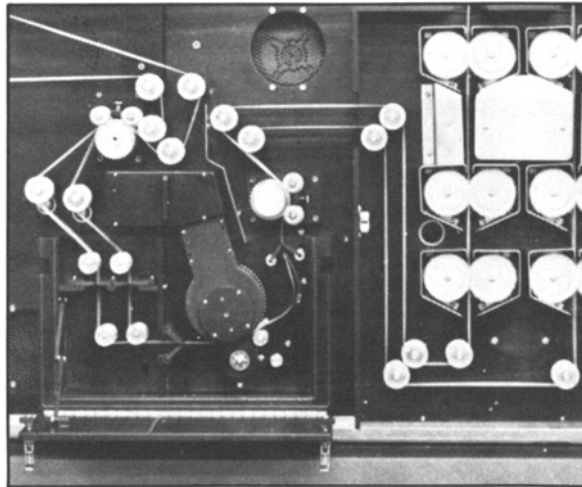


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evaluating the effect of differential gain and differential phase distortions on perceived color errors has been designed and the architecture of this computer program is explained.

**On-Line Regeneration of Ferricyanide Bleach Using Ozone**, George A. Lorenzo and Larry J. Polk, *Journal of Applied Photographic Engineering*, 5: 36-39, No. 1, Winter 1979.

Persulfate regeneration of ferricyanide bleach requires bleach throwaway to maintain the specific gravity due to a build-up of sulfate in repetitive regenerations. Ozone regeneration of bleach in a batch process, however, produces no by-product build-up and consequently does not require bleach

throwaway. The only loss in the batch ozone process is that from carryover. To minimize this carryover loss and thus reduce chemical and pollution control costs further, on-line ozonation of bleach was considered. On-line ozonation allowed lower concentrations of ferricyanide in the bleach by maintaining very low concentrations of ferrocyanide, resulting in less carryover. Automatic operation, cleaner processing solutions, and elimination of a carbowax additive were other advantages.

**Disturbances Occuring at Edits on PAL 625-Line Videotapes**, J. W. van Dael, *EBU Review*, 172: 265-273, Dec. 1978.

After an explanation of the nature of the problem, the article defines and describes the

disturbances that can occur when discontinuities in the PAL 8-field sequence are introduced by the editing of tape recordings. It analyzes the operational limits of the existing color framing systems which are intended to prevent these disturbances and gives proposals for solutions that would completely eliminate them. Further explanations of certain aspects of the way in which the disturbances occur and of the equipment involved are given in six appendices.

**Analog-to-Digital and Digital-to-Analog Conversion for Broadcast Quality Sound**, N. H. C. Gilchrist, *Radio and Electronic Engineer*, 49: 77-84, Feb. 1979.

A 13-channel PCM system forms a significant part of the BBC's national radio distribution network and is used to carry quality sound program material hundreds of miles with minimal impairment from noise, interference, and distortion. High quality analog-to-digital converters (ADCs) and digital-to-analog converters (DACs) are required for use in sound-program links; and other applications for these converters, such as digital sound studio equipment, can be foreseen. To date, the BBC has used 13-bit ADCs and DACs developed within the corporation. The next generation of digital equipment is likely to require coders and decoders giving 14 bits/sample or even higher resolution. In this paper some of the defects which may be encountered with various types of ADC and DAC are discussed, and the merits of different types of converters for high quality sound are considered.

**Electronic Subtitling for Feature Films**, W. R. Hawkins, W. Murray, and P. Tigwell, *The BKSTS Journal*, 61: 34-40, Feb. 1979.

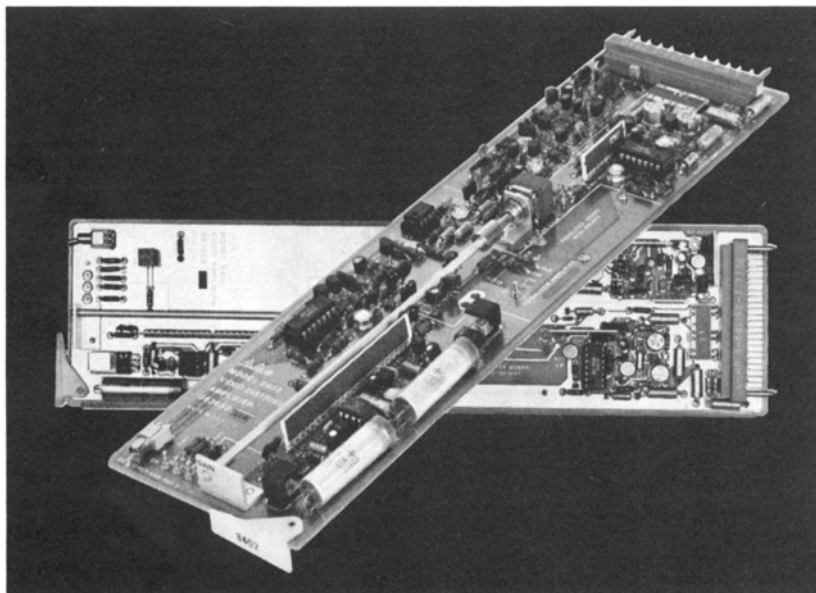
The authors indicate the difficulty of superimposing legible captions on a television picture and outline possible ways of generating and timing the separate captions. The selected method uses an electronic character generator supplied with stored titles and timed by reference to a frame counter. The system constraints determine the specification of the character generator and its font; they also lead to the choice of a floppy disk as a suitable storage medium. The preparation system to compile timings and text at leisure beforehand consists of a high quality printer linked to dual floppy disk drives controlled by a minicomputer. The replay system consists of a character generator, control panels, and a frame counter on each telecine machine, all linked by a separate minicomputer, with appropriate signal routers and standby systems. The article concludes with some observations on the operational experience that has been gained.

**Considerations for Providing Audio Coverage in Television Production Studios**, Bruce Lowell, *Journal of the Audio Engineering Society*, 26: 863-866, Nov. 1978.

Providing audio coverage in a broadcast television production studio is of equal importance with the actual program audio mix. Some of the daily problems that the audio setup crews encounter under the pressure of tight schedules are shown. In teleproduction many techniques of more permanent sound system installations are not always applicable.

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