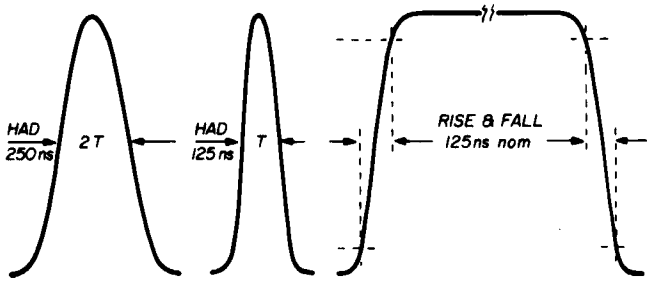


Fig. 5A. 2*T* pulse, *T* pulse, and *T* step.

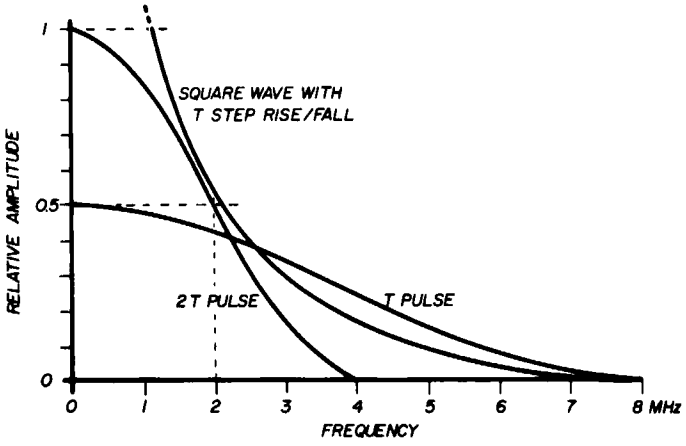


Fig. 5B. Envelope of frequency spectrum of 2*T* pulse, *T* pulse and square wave with *T* step rise and fall.

Trial-Use Aspects

IEEE Standard 511-1974 has been issued on a trial-use basis. The official IEEE Standards Manual states that if consensus cannot be achieved on a proposed standard, it may be issued as an IEEE Trial-Use Standard. Trial-use standards are normally issued for a two-year period, the first year being for the collection of comments and the second year for the revision of the document to the category of full-status IEEE document. As stated in the Foreword of the Standard, full agreement on some viewpoints had not been reached in the subcommittee which prepared the standard. Therefore it was decided to recommend the issuance of the document as a trial-use standard with the expectation that the use of this standard in actual operating situations would allow the disagreements to be resolved.

The two principal areas of disagreement were concerned with short-time distortion and are discussed briefly below.

(1) *2T Pulse vs T-Step Waveform Test Signals.* (Fig. 5) The originators of sine-squared measurement techniques for short-time waveform distortion used both the 2*T* and *T* sine-squared pulses. The 2*T* pulse has a frequency spectrum which is half amplitude at 2 MHz and zero at 4 MHz. The 2*T* pulse therefore is not considered suitable to test the characteristics of the 4-MHz band edge of the television spectrum. The frequency spectrum of the *T*-pulse is half amplitude at 4 MHz and zero at 8 MHz. The disadvantage of this signal is that it contains appreciable-out-of band energy above 4 MHz which must be taken into account before evaluating the signal response. The frequency spectrum of the *T*-step is a compromise in that it contains appreciably more energy than the 2*T* pulse at the band edge but less energy than the *T* pulse above the band edge.

The importance of knowing the response at the luminance band edge of a television system has become especially important today because of the increasing practice of using electronically generated alphanumeric characters and graphics. These signals have sufficiently fast rise-times to make full use of the available television system bandwidth. The principal area of disagreement among the subcommittee members lies in the wish to have the 2*T* pulse included together with the *T*-step for the general purpose measurement of short-time distortion, whereas the standard calls just for the use of the *T*-step for this purpose.

(2) *Short-Time Distortion Graticule.* As discussed earlier, the application of waveform test signals is simplified by the use of oscilloscope graticules which contain markings that define various degrees of distortion. Such a graticule is included in the standard for the measurement of short-time distortion by use of the *T*-step signal. Some disagreement among members of the subcommittee concerns the shape of this graticule, which relates the subjective effects of both time and amplitude of short-time distortions. A derivation of the graticule is included in an appendix of the standard. A paper by A. M. Lessman published in the December 1972 issue of the *Journal* contains data from which such a graticule may be derived. There is some disagreement about the interpretation of Lessman's data although the standard states that a review of Lessman's paper showed that the data presented "are generally consistent with the graticule described in this standard."

Conclusion

Comments received on Standard 511 thus far have dealt principally with theoretical aspects of the standard rather than with actual trial use. The purpose of this Note is to extend the knowledge of this standard to the readers of the *Journal* and to encourage its trial use so that a wider variety of comments may be obtained. It is planned to extend the trial-use period to provide this opportunity. The IEEE Committee urges television broadcast engineers to use this standard for the trial period and asks that they submit their comments to the IEEE so that points of disagreement may be resolved and a full-status standard can be issued.

References

1. I. F. Macdiarmid, "A testing pulse for television links," *Proc. Inst. Elec. Engrs. (London), 99:* Part III, A, 436, 1952.

Biographical Note

John M. Calhoun

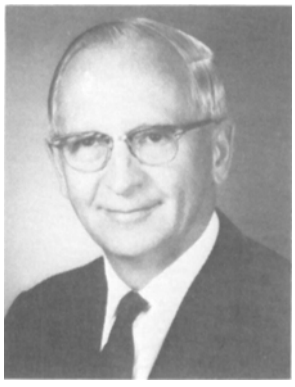
John M. Calhoun, an authority on physical properties and dimensional behavior of photographic materials, retired early this year from Eastman Kodak Company where he was technical assistant to the general manager of the Kodak Park Division.

Born in Calgary, Alberta, Can. 15 November 1912, Dr. Calhoun was educated in Canada where he obtained the BS degree in Chemistry in 1935 from the University of Alberta. He was granted the PhD degree by McGill University in 1938. In that same year he joined Eastman Kodak Company as a research chemist in the Manufacturing Experiments Division at Kodak Park in Rochester, New York.

In 1958 he became assistant director of the division and in 1963 Dr. Calhoun was promoted to assistant technical advisor to the general manager at Kodak Park. In 1966 he was named technical assistant to the general manager in which capacity he served until his retirement.

Dr. Calhoun joined the Society in 1948 and was elected a Fellow in 1958. He served on several engineering committees and was chairman of the Progress Committee from 1960-1963 during which time he prepared three comprehensive reports that were published in the *Journal.*

From 1946 to 1955 he was a member of the D-20 Plastics Committee of the American Society for Testing Materials. Between 1949 and 1964 he served on the Committee on Protection of Records of the National Fire Pro-



John M. Calhoun

tection Association. Dr. Calhoun was Chairman of Sub-Committee PH1-3, Characteristics of Films, Plates and Papers of the United States of America Standards Institute from 1952 through 1967. He also served as the USA Member of IWG-F of the International Standards Organization, Committee TC-42 Photography from 1960-1967.

While at Kodak, Dr. Calhoun's area of work included the physical characteristics of plastics, gelatin and photographic film. He has published extensively on the dimensional stability and storage behavior of these materials. His first paper on this subject appeared in the *Journal of the SMPE* in October 1944 and it provided much useful information for the many users of photographic materials during the war years. The paper included discussions on the mechanical properties of film, such as tensile strength, elongation, modulus of elasticity, cold flow, folding endurance and tearing resistance. He described the effects of relative humidity and temperature on brittleness, temporary and permanent film shrinkage and physical changes that occur during processing and storage.

In the February 1955 issue of the *Journal of the SMPTE*, Dr. Calhoun published further data on shrinkage behavior of film giving information on the improved film supports for negative films that had been produced since his first article. In the September 1955 *Journal*, with J. F. Carroll, he published data on the effect of nitrogen oxide gases on processed acetate films. In the March 1960 issue Dr. Calhoun and P. Z. Adelstein discussed the factors which affect dimensional changes in cellulose estar base motion-picture films, pointing out that film dimensions are standardized at the time of cutting and perforating and subsequently vary with conditions of age in a fairly well-defined manner.

In addition to these important papers, Dr. Calhoun has published articles on physical properties and dimensional stability of safety aerographic film (*Photogrammetric Eng.*, June 1947), air conditioning and storage (*Heating and Ventilating*, October 1949; Phot. Sci. & Tech. Sect. B. *PSA Jour.*, October 1952; *Jour. Biological Photographic Assn.*, August 1953). With D. A. Leister, he discussed the effect of gelatin layers on the dimensional stability of photographic film (*Phot. Sci. & Eng. 3;* No. 1, Jan.-Feb. 1959). A short article in the British publication *Perspective* in 1960 discussed the technology of new film bases. With L. E. Keller and R. F. Newell, Jr., Dr. Calhoun described a method of studying possible distortions in aerial film (*Photogrammetric Eng.*, September 1960). Physical properties of estar polyester base aerial films for topographic mapping were described jointly with P. Z. Adelstein and J. T. Parker (*Photogrammetric Eng.*, June 1961). In *The American Archivist* for July 1967, he published information on the preservation of motion-picture film. From this brief review of his published papers it can be seen that he has made available a considerable amount of useful data on the physical properties of photographic films.

Besides being a member of the SMPTE, Dr. Calhoun is a member of the American Chemical Society and the Society of Photographic Scientists and Engineers.

In April, 1938, he married Jean Fettes of Calgary, Alberta, Canada. They have three children. Dr. Calhoun was active for 13 years in Boy Scout work and was a member of the Board of Elders of Summerville Presbyterian Church from 1969-1971. —

Glenn E. Matthews

standards and recommended practices

Draft American National Standards

Two Draft American National Standards, which are editorial revisions of previous issues, are published here for a trial period and public review: C98.8, Specifications for an Audio Level and Multifrequency Test Tape for Quadruplex Video Magnetic Tape Recorders Operating at 15 in/s (381 mm/s), and C98.11, Specifications for an Audio Level and Multifrequency Test Tape for Quadruplex Video Magnetic Tape Recorders Operating at 7.5 in/s (190.5 mm/s).

Comments should be addressed to Alex E. Alden, *Staff Engineer*, at Society Headquarters prior to 1 November 1975. The proposals have been submitted to American National Standards Committee C98. All comments received through *Journal* publication will be reviewed before conclusion of action by that committee.

Proposed SMPTE Recommended Practices

Two Proposed SMPTE Recommended Practices are published here for a trial period and public review: RP 43, Video Test Tape for Quadruplex Video Frequency Magnetic Tape Recorders Operating at 15 in/s and Practice HB of SMPTE Recommended Practice RP 6, and RP 44, Video Test Tape for Quadruplex Video Frequency Magnetic Tape Recorders Operating at 7.5 in/s and Practice HB of SMPTE Recommended Practice RP 6.

It should be pointed out that the specifications have been modified to state that the axis of the multibursts shall be at 55 IRE units instead of 50 and that the peak-to-peak amplitude of the bursts shall be 90 IRE units instead of 100. In addition, the window signal has been changed to a modulated 12-1/2T pulse instead of a 20T pulse. An audio record has also been added to the two tracks — a 1-kHz signal at 110 nanowebers on Audio Record No. 1 and at 260 nanowebers on Audio Record No. 2.

Comments on the proposals should be addressed to Alex E. Alden, *Staff Engineer*, at Society Headquarters prior to 1 November 1975. If no adverse criticism is received by that date, the Proposed SMPTE Recommended Practices will be submitted to the Board of Governors for final approval.

Approved International Standards

The International Organization for Standardization (ISO) approved International Standard ISO 3042-1975, Cinematography — Labelling of Containers for Unexposed Motion-Picture Films and Magnetic Films — Minimum Information Specifications. Although the USA does not have a comparable national standard, the section on raw stock winding is in accordance with PH22.75.

Copies of all International Standards are sold through the American National Standards Institute, 1430 Broadway, New York, NY 10018.

ISO is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. The International Standard published here was developed by Technical Committee 36 on Cinematography. The work of this committee is administered by the Engineering Department of the SMPTE which functions as the secretariat in ANSI's name. The report of the last meeting of the committee was published in the February 1974 *Journal of the SMPTE*. — Alex E. Alden, *Staff Engineer*