The 123rd SMPTE Technical Conference and Equipment Exhibit

October 25-30, 1981

Century Plaza Hotel, Los Angeles, Calif.

More than 100 companies have signed up for exhibit space for the conference equipment exhibit.

The SMPTE exhibit is set for the Century Plaza Hotel in Los Angeles, October 27–29, in conjunction with the SMPTE Technical Conference that runs from October 25–30.

The rate at which exhibit reservations were received is faster than any previous SMPTE conference. Last year's New York exhibit was completely sold out shortly after the cutoff date. A sellout is expected this year as well.

In addition to the exhibit, the conference will feature five days of technical sessions on the technical aspects of motion pictures and television. There will also be an awards luncheon, banquet, a daily coffee club and a complete program for spouses.

Information about the conference and exhibit will be mailed to members during the summer. Don't miss the September *JOURNAL* for the complete advance program and directory of exhibitors.

STANDARDS AND RECOMMENDED PRACTICES

Approved American National Standard

A revision of an American National Standard was approved by the American National Standards Institute on January 15, 1981: ANSI V98.12M-1981, Time and Control Code for Video and Audio Tape for 525-Line/60-Field Television Systems. Specifications for the recorder input waveform characteristics are included in the new version. Copies of the standard may be obtained for a nominal fee from the American National Standards Institute, 1430 Broadway, New York, NY 10018.

Proposed American National Standards

Two Proposed American National Standards are published here for a trial period and public review: PH22.205, Specifications for 8-mm Type S Motion-Picture Camera Cartridge, Cartridge-Camera Interface and Take-Up Core Drive (200-ft Capacity); and PH22.206, Specifications for 8-mm Type S Model 1 Sound Motion-Picture Camera Cartridge Aperture and Profile, Film Position, Pressure Pad and Flatness (200-ft Capacity). Comments should be addressed to Alex E. Alden, Manager of Engineering Services, at Society Headquarters before October 1, 1981. The proposals have been submitted to American National Standards Committee PH22. Consequently, all comments received from *JOURNAL* publication will be reviewed prior to the conclusion of action by that committee.

Approved International Standard

The International Organization for Standardization (ISO) recently approved an International Standard, the technical content of which is published here for your information. ISO 5759-1980, Cinematography — Sound Motion-Picture Camera Cartridge, 8-mm Type S, Model 1 — Cartridge-Camera Interface and Take-Up Core Drive — Dimensions and Specifications, is in agreement with American National Standard ANSI PH22.197-1980.

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ANSI V98.12M—1981
Revision of C98.12-1975

American National Standard
time and control code for video and audio tape for 525-line/60-field television systems

Approved January 15, 1981 | Secretariat: Society of Motion Picture and Television Engineers

1. Scope

This standard specifies a digital code format and modulation method relating to the input of video and audio magnetic tape recorders. The code is to be used for timing and control purposes.

2. Modulation Method

The modulation method shall be such that a transition occurs at the beginning of every bit period. "One" is represented by a second transition one half a bit period from the start of the bit. "Zero" is represented when there is no transition within the bit period. (See Fig. 2.)

3. Code Format

3.1 Each television frame shall be identified by a unique and complete address. A frame consists of two television fields or 525 horizontal lines.

3.1.1 The frames shall be numbered successively 0 through 29.

3.2 Each address shall consist of 80 bits numbered 0 through 79.

3.3 The bits shall be assigned as shown in Fig. 1 and described below:

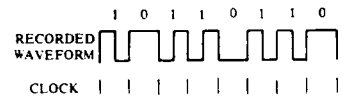
- 0-3 Units of frame
- 4-7 First binary group
- 8-9 Tens of frames
- 10 Drop frame flag (see Sec. 3.7)
- 11 Color frame flag (see Sec. 3.7)
- 12-15 Second binary group
- 16-19 Units of seconds
- 20-23 Third binary group
- 24-26 Tens of seconds
- 27 Unassigned address bit (0 until assigned by the SMPTE)
- 28-31 Fourth binary group
- 32-35 Units of minutes
- 36-39 Fifth binary group
- 40-42 Tens of minutes
- 43 Unassigned address bit (0 until assigned by the SMPTE)
- 44-47 Sixth binary group
- 48-51 Units of hours
- 52-55 Seventh binary group
- 56-57 Tens of hours
- 58-59 Unassigned address bits (0 until assigned by the SMPTE)
- 60-63 Eighth binary group
- 64-79 Synchronizing word
  - 64-65 Fixed zero
  - 66-77 Fixed one
  - 78 Fixed zero
  - 79 Fixed one

3.4 Boundaries of Address. The address shall start at the clock edge before the first address bit (bit zero). The bits shall be evenly spaced throughout the address period, and they shall occupy fully the address period which is one frame. Consequently, the bit rate shall be 80 times the frame rate in frames per second. (See Sec. 3.1 for definition of a television frame.)

American National Standards Institute, 1430 Broadway, New York, N.Y. 10018

80 BITS PER FRAME

32 USER BINARY SPARE BITS
16 SYNC
28 ASSIGNED ADDRESS
4 UNASSIGNED ADDRESS
ALL UNASSIGNED BITS ARE ZEROS.



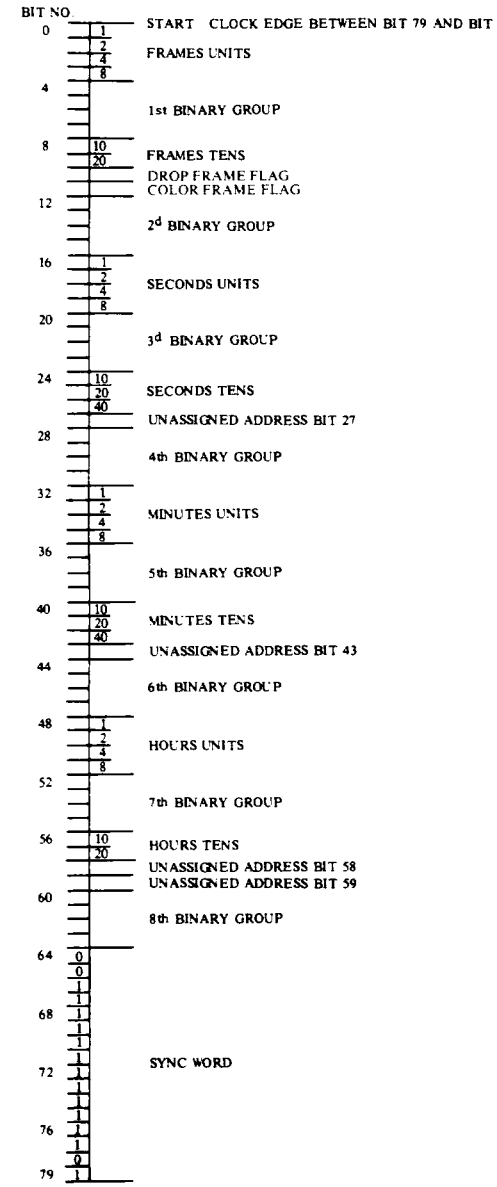


Fig. 1

3.5 Start of Address The start of the address shall occur at the beginning of Line 5 in Fields I and III, as defined in EIA Industrial Electronics Tentative Standard No. 1, Color Television Studio Picture Line Amplifier Output Drawing. The tolerance shall be plus or minus one line.

3.5.1 If color frame identification in the code is required, the even units of frame numbers shall identify Frame A and odd units of frame numbers shall identify Frame B, as defined by EIA Tentative Standard No. 1.

3.6 Use of Binary Groups. The binary groups are intended for storage of supplementary data by the users, and the 32 bits within the eight groups may be assigned in any fashion without restrictions. It is anticipated that the use of these bits will be standardized in the future.

3.7 Assigned and Unassigned Address Bits. Six bits are reserved within the address groups, two for identifying operational modes, and four unassigned but reserved for future assignment and defined as zeros until further specified by the SMPTE.

Bit No. 10—Drop Frame Flag. If certain numbers are being dropped to resolve the difference between real time and color time, as defined in Sec. 4.2.2, a "1" shall be recorded.

Bit No. 11—Color Frame Flag. If color frame identification has been intentionally applied, as defined in Sec. 3.5.1, a "1" shall be recorded.

Bits No. 27, 43, 58, 59—Unassigned Address Bits. "0" until assigned by the SMPTE.

4. Time Discrepancies

4.1 Definitions of Real Time and Color Time:

4.1.1 Real time is defined as the time elapsed during the scanning of 60 fields (or any multiple thereof) in an ideal television system at a vertical field rate of exactly 60 fields per second.

4.1.2 Color time is defined as the time elapsed during the scanning of 60 fields (or any multiple thereof) in a color television system at a vertical field rate of approximately 59.94 fields per second.

4.2 Because the vertical field rate of a color signal is approximately 59.94 fields per second, straightforward counting at 30 frames per second (60 fields per second) will yield an error of +108 frames (+216 fields), equivalent to +3.6 seconds timing error, in one hour of running time. For correction of this time discrepancy, two methods of operation are allowed:

4.2.1 Nondrop Frame — Uncompensated Mode. During a continuous recording, no numbers shall be omitted from the chain of addresses. Each address shall be increased by 1 frame over the frame number immediately preceding it. When this mode is used, bit No. 10 of each address shall be a "0" as specified in Sec. 3.7.

4.2.2 Drop Frame—Compensated Mode. To resolve the color time error, the first two frame numbers (0, 1) at the start of each minute, except minutes 0, 10, 20, 30, 40, and 50, shall be omitted from the count. When this mode is used, bit No. 10 of each address shall be a "1" as specified in Sec. 3.7.

5. Structure of the Address Bits

5.1 The basic structure of the address is based upon the Binary Coded Decimal (BCD) system. Because the count in some cases does not rise to 9, conservation of bits is achieved because 4 bits are not needed as in an ordinary BCD code. (The 24-hour clock system is used; 2:00 p.m. is 1400 hours.)

5.1.1 Units Frames. Bits 0-3—4 bit BCD arranged 1, 2, 4, 8. Count 0-9.

5.1.2 Tens Frames. Bits 8-9—2 bit BCD arranged 1, 2. Count 0-2.

5.1.3 Units Seconds. Bits 16-19—4 bit BCD arranged 1, 2, 4, 8. Count 0-9.

5.1.4 Tens Seconds. Bits 24-26—3 bit BCD arranged 1, 2, 4. Count 0-5.

5.1.5 Units Minutes. Bits 32-35—4 bit BCD arranged 1, 2, 4, 8. Count 0-9.

5.1.6 Tens Minutes. Bits 40-42—3 bit BCD arranged 1, 2, 4. Count 0-5.

5.1.7 Units Hours. Bits 48-51—4 bit BCD arranged 1, 2, 4, 8. Count 0-9.

5.1.8 Tens Hours. Bits 56-57—2 bit BCD arranged 1, 2. Count 0-2.

6. Recorder Input Waveform Characteristics (See Fig. 2)

6.1 Rise Time. The rise and fall times of the clock and "one" transitions of the code pulse train shall be 25 ± 5 microseconds, measured between the 10 and 90 percent amplitude points on the waveform.

6.2 Amplitude Distortion. Amplitude distortion, such as overshoot, undershoot, and tilt, shall be limited to 2 percent of the peak-to-peak amplitude of the code waveform.

6.3 Time of Transitions. The time between clock transitions shall not vary more than 1 percent of the average clock period measured over at least one frame. The "one" transition shall occur halfway between two clock transitions within .5 percent of one clock period. Measurements of these timings shall be made at half-amplitude points on the waveform.

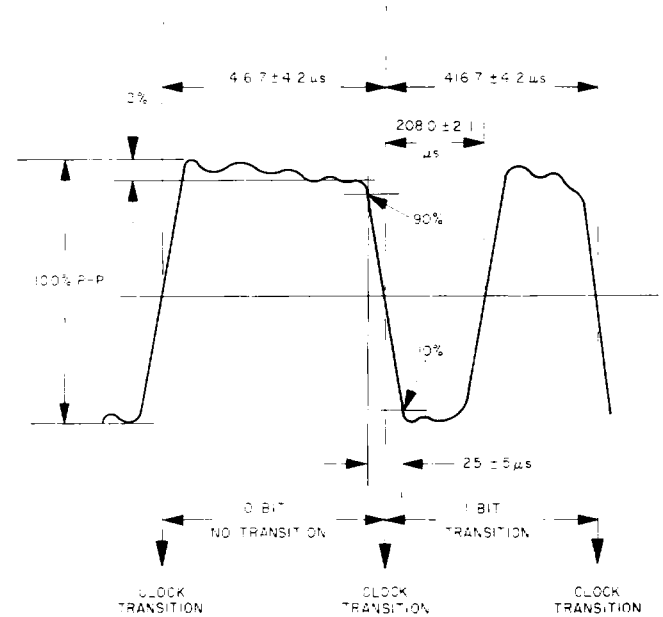


Fig. 2