Table 1
Reference Signal Sequence

Video	*Audio 1*	*Audio 2*	*Audio 3*	*Start*	*End*
Multiburst	1 kHz	1 kHz ref	1 kHz	00:00	01:00
Ramp	63 Hz	63 Hz	63 Hz	01:00	02:00
Window & Pulses	4 kHz	4 kHz	4 kHz	02:00	03:00
Color Bars	16 kHz	16 kHz	16 kHz	03:00	04:00
Chroma Field	Silent	Silent	Silent	04:00	05:00
Multiburst	1 kHz* (−8 dB)	0	Time Code	05:00	05:15
Multiburst	63 Hz* (+8 dB)	0	Time Code	05:15	05:30
Multiburst	16 kHz* (+8 dB)	0	Time Code	05:30	05:45
Multiburst	Silent	1 kHz* (−8 dB)	Time Code	05:45	06:00
Ramp	Silent	63 Hz* (+8 dB)	Time Code	06:00	06:15
Ramp	Silent	16 kHz* (+8 dB)	Time Code	06:15	06:30
Ramp	Silent	0	Time Code	06:30	07:00
Window & Pulses	Frequency Response† (−10 dB)	Frequency Response† (−10 dB)	Frequency Response	07:00	08:00
Color Bars	Frequency Response† (−10 dB)	Frequency Response† (−10 dB)	Frequency Response	08:00	09:00
50 IRE Gray Field	Frequency Response† (−10 dB)	Frequency Response† (−10 dB)	Frequency Response	09:00	10:00

Note: Frequency response sequence: 1 kHz (ref.) 30 sec., each tone 12 sec., and final 1 kHz (secondary ref.) 18 sec.

*Above reference level

†Below reference level

3.4.1 Time Tolerance. The tolerance of all times shown in Table 1 shall be + 0.5 seconds or —3.0 seconds.

4. *Calibration*

4.1 Video Calibration. All video measurements of luminance levels shall be made in accordance with American National Standard Method of Measurement of Television Luminance Signal Levels, ANSI/IEEE 205-1958 (R1972).

4.2 Audio Calibration. The short circuit tape flux on the reference tape shall be determined by means of the calibrated short-gap ferromagnetic core reproducer technique. This technique is described in the following references:

American National Standard Method of Measuring Recorded Flux of Magnetic Sound Records at Medium Wavelengths, ANSI/IEEE 347-1982.

MC KNIGHT, J. G. Flux and flux-frequency response measurements and standardization in magnetic recording. Jour. SMPTE, vol 78, no. 6, June 1969, pp 457-472.

LOVICK, R. C.; BARTOW, R. E.; and SCHEG, R. F. Recording and calibration of super-8 magnetic reproducer test films. Jour. SMPTE, vol 78, no. 6, June 1969 pp 473-481.

SMPTE RECOMMENDED PRACTICE

RP 100-1983

Interchange Reference Tape for 1-in Type C Helical-Scan Video Tape Recorders

1. *Scope*

1.1 This practice specifies an interchange reference tape to be used with 1-in Type C helical-scan video tape recorders, as defined in American National Standard Dimensions and Location of Records for 1-in Type C Helical-Scan Video Tape Recording, ANSI C98.19M-1979. It is to be used for verification and/or adjustment of parameters including

1.1.1 Angular position and elevation of the video heads

1.1.2 Track straightness

1.1.3 Phase of control track

1.1.4 Audio head azimuths and elevations

1.1.5 Skew errors (verification only)

2. *General Specifications*

2.1 The reference tape shall comply with the following American National Standards and SMPTE Recommended Practices:

American National Standard for Video Recording — 1-in Type C Reference Recorders — Basic System and Transport Geometry Parameters. ANSI V98.27M-1983.

American National Standard for Video Recording — 1-in Type C Reference Tapes — Records. ANSI V98.28M-1983.

American National Standard Specifications and Conditioning of Raw Tape Stock Used to Record Reference Tapes for 1-in Helical-Scan Video Tape Recorders. ANSI V98.26M-1982.

SMPTE Recommended Practice on Tracking-Control Record for 1-in Type C Helical-Scan Video Tape Recording. RP 85-1979.

SMPTE Recommended Practice on Video Record Parameters for 1-in Type C Helical-Scan Video Tape Recording. RP 86-1979.

2.2 Video synchronizing waveforms and video amplitudes shall conform to EIA Industrial Electronics Tentative Standard No. 1, Color Television Studio Picture Line Amplifier Output Drawing. Blanking widths shall be 20 lines vertical and less than 10.7 microseconds horizontal.

3. *Reference Signals*

3.1 Video Signal. The video signal shall consist of 40 units of sync conforming to EIA Tentative Standard No. 1 and 100 ± 1 IRE units of a white field video signal from the end of H blanking to the beginning of H blanking on all active video lines.

3.2 Audio Signals

3.2.1 A 4 kHz ± 2 percent tone recorded at reference level conforming to the record pre-emphasis specified in American National Standard Frequency Response and Reference Level of Recorders and Reproducers for Audio Records for 1-in Type C Helical-Scan Video Tape Recording, ANSI C98.20M-1979. Stereo phase error between Channel 1 and Channel 2 shall be less than 5°.

3.2.2 A 16 kHz ± 2 percent tone recorded at the level as specified in ANSI C98.20-1979.

3.3 Sequence of Signals. Video and audio signals shall be recorded in the following sequence:

Video	*Audio 1*	*Audio 2*	*Audio 3*	*Time*
Video Test Signal	Voice Announcement	—	—	00:00-00:30
Video Test Signal	4 kHz 0 dB reference level	1 kHz 0 dB reference level	1 kHz 0 dB reference level	00:30-05:30
Video Test Signal	16 kHz 0 dB reference level	16 kHz 0 dB reference level	16 kHz 0 dB reference level	05:30-10:00

Approved 3 February 1983