

## Approved American Standards

On November 19, 1963, the American Standards Association approved the first four American Standards dealing with video magnetic tape recording. These Standards were originally approved by the SMPTE during 1960; however, the ASA did not have, at that time, an appropriate sectional committee to handle this subject. Subsequently, the SMPTE undertook to sponsor a second sectional committee for this subject. (SMPTE also sponsors ASA Sectional Committee PH22 on Motion Pictures.) Because of the urgent demand for standardization, the Society distributed these standards during the interim as Proposed American Standards. It must be noted that the present standards differ from the originals in that they now reflect current usage of the 7.5 inch per second operating tape speed. The four standards are published here: American Standard Dimensions of 2-In. Video Magnetic Tape, C 98.1-1963, describes the width, thickness and curvature of 2-in. video magnetic tape; American Standard Specifications of Monochrome Video Magnetic Tape Leader, C 98.2-1963, specifies the audio and video information that precedes and follows the program material, and provides the necessary "cue up" and "run out" information; American Standard Specifications of the Audio Records for 2-In. Video Magnetic Tape Recordings, C 98.3-1963, details the electrical characteristics of the audio record; American Standard Speed of 2-In. Video Magnetic Tape, C 98.4-1963, specifies the rate of travel of 2-in. wide video magnetic tape used in quadruplex type video-tape recorders.

Individual copies of these standards can be purchased from

the American Standard Association, 10 East 40th St., New York, 10016.—A.E.A.

## Approved SMPTE Recommended Practices

On October 9, 1963, the Society's Board of Governors approved SMPTE Recommended Practice RP 13, Safe Action Area for TV Transmission. Originating in the Television Committee, this Recommended Practice is an addition to the set of standards reflecting image areas currently used for television transmission. Along with RP 8, Safe Title Area, this Recommended Practice reflects the results of an extensive study of television reception throughout the United States and is intended to guide cameramen and film-producing organizations in composing pictorial information. Due to the many variables in a television circuit, voltage regulation, peculiarities of adjustment, ageing, etc., various degrees of masking result in loss of picture information. Consequently, specific measurements are impossible. The two Practices, however, provide an indication of the possible size of the areas that the average properly-adjusted home receiver may be expected to show.

Another Recommended Practice, RP 1, 16mm and 8mm Projector Sprocket Design, was approved by the Board of Governors on October 13, 1963. This Recommended Practice was previously issued in 1950 and a review by the 16 and 8mm Committee resulted in complete reaffirmation of the document as still representative of current engineering practices.

Copies of approved SMPTE Recommended Practices can be obtained from Society Headquarters.—A.E.A.

## SMPTE RECOMMENDED PRACTICE RP 13-1963

# Safe Action Area for TV Transmission

### Introduction

This Recommended Practice originated in the Television Committee of the Society. Approved by the initiating and Standards Committees, the proposal was published for trial and comment in the May 1963 Journal. The recommendation received final approval by the Society's Board of Governors on October 9, 1963.

### 1. Scope

- 1.1 Existing standards defined the camera aperture, projector aperture and scanned area for each of the media commonly used as sources of photographic material for television transmission.
- 1.2 This recommended practice suggests a specific area within which all significant action should take place, with the intent of insuring visibility of the action on a properly adjusted home receiver.

### 2. Recommended Practice

- 2.1 For any form of motion picture or slide material, significant action should be kept within the shaded portion of the drawing.

- 2.2 The dimensions are stated in terms of the nominal scanned area transmitted by the television system. 100% is, by definition, equal to the width of the scanned area and 75% is then the height of the scanned area.
- 2.3 For operating convenience, it is suggested the outline of the shaded area be indicated in all camera viewfinders.
- 2.4 Review room projectors used for production evaluation should be equipped with special apertures having the dimensions of the safe action area.
- 2.5 Projectors used for print inspection should have apertures at least as large as the scanned area. The dimensions of the safe action area should be indicated at the projection screen.

*Note:* The safe action area should not be confused with either the safe title area or the scanned area.

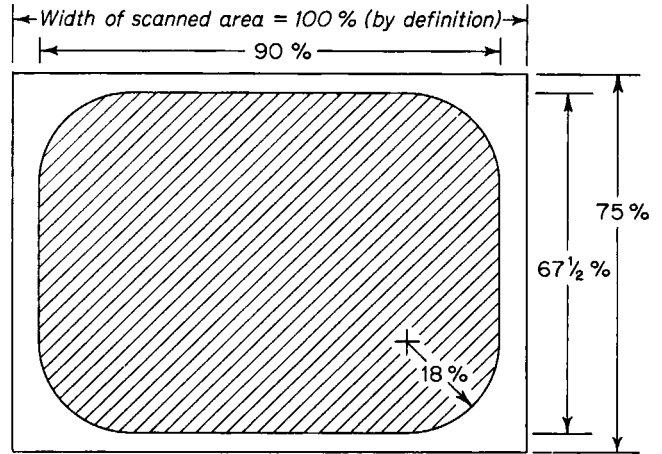
### 3. Reference Standards


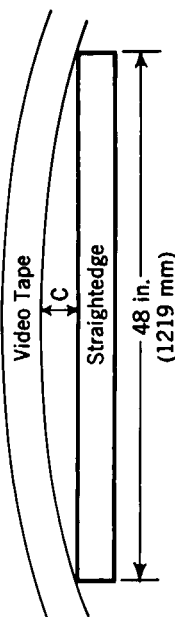
- 3.1 The dimensions of the various scanned areas will be found in the following American Standards:  
Dimensions of Television Image Area on 16mm Motion-Picture Film, PH22.96-1963

Dimensions of Television Image Area on 35mm Motion-Picture Film, PH22.95-1963  
 Slides and Opaques for Television Film Camera Chains, PH22.94-1954

3.2 The current values in the reference standards result in the following dimensions:

Medium	Scanned Width (100%)	Dimensions of Safe Action Area		
		Width (90%)	Width (67½%)	Radius (18%)
16 mm Film	0.368 in.	0.331 in.	0.248 in.	0.066 in.
35 mm Film	0.792 in.	0.713 in.	0.535 in.	0.143 in.
2'' x 2'' Slide	1.125 in.	1.013 in.	0.759 in.	0.203 in.



 Rev. U.S. Pat. Off. <b>C98.1-1963</b> <small>*UDC 681.85621.397.5</small>	<h2 style="text-align: center;">American Standard</h2> <h3 style="text-align: center;">Dimensions of 2-In. Video Magnetic Tape</h3> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><b>1. Scope</b> This standard specifies the dimensions for the width, thickness, and curvature of 2-in. video magnetic tape.</p> <p><b>2.1 Width.</b> The width of the tape shall be 2.000 <math>\begin{smallmatrix} +0.000 \\ -0.004 \end{smallmatrix}</math> in. (50.80 <math>\begin{smallmatrix} +0.00 \\ -0.10 \end{smallmatrix}</math> mm).</p> <p><b>2.2 Thickness.</b> The overall thickness of the base plus coating shall not exceed 0.0015 in. (0.038 mm).</p> </div> <div style="width: 45%;"> <p><b>3. Curvature</b></p> <p><b>3.1</b> The curvature of the tape shall not exceed 0.0625 in. (1.588 mm) in 48 in. (1219 mm).</p> <p><b>3.2 Measurement.</b> Curvature shall be measured by constraining the tape to lie in a plane under zero tension and by positioning a 48-in. long (1219 mm) straightedge as shown in the figure. The maximum deviation, C, of the tape edge from the straightedge shall be taken as the curvature.</p> </div> </div> <div style="text-align: center; margin-top: 20px;">  <p>Video Tape C Straightedge 48 in. (1219 mm)</p> </div>
<p>Approved November 19, 1963, by the American Standards Association, Incorporated          Sponsor: Society of Motion Picture and Television Engineers</p> <p style="font-size: small;">* Universal Diodal Classification</p> <p style="font-size: x-small;">Copyright 1963 by American Standards Association, Incorporated          38 East 40th Street, New York 16, N.Y.          Printed in U.S.A.          ASA1M1263/96</p>	

**1. Scope**

Specifies the audio and video alignment signals that precede and follow the program material (for purposes of continuity of reproduction), and provides necessary identification "cue up" information. The standard also specifies minimum lengths of tape required for proper "threading" and "threading" for monochrome video-tape.

**2.2** Simultaneously, a reference level audio tone of 400 cps (cycles per second)  $\pm$  5 per cent shall be recorded at the same level and under the same conditions of equipment adjustment used for recording the audio portion of the program material.

**2.3** The alignment signal shall be preceded by at least 10 seconds of blank tape for "threading" purposes.

**3. Identification Information**

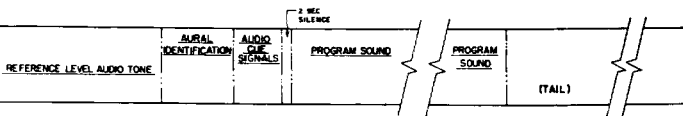
**3.1** Visual identification information shall be recorded for at least 15 seconds following the video alignment signal specified in Section 2. In a typical case, the identification might contain:

- (1) title
- (2) subject
- (3) production number
- (4) "take" number
- (5) recording studio name
- (6) date of recording

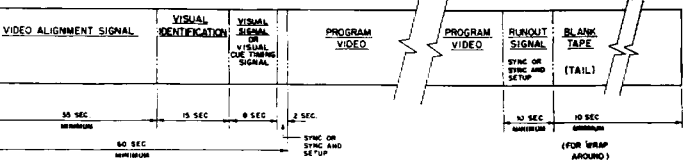
**Alignment Signal**

At the end of the tape, at least 35 seconds of blank tape shall be recorded at the same level and under the same conditions of equipment adjustment used for recording the program material. (It is desirable that the test signal include a black and reference white information signal should be of such a nature as to require vacuum guide adjustment, etc.)

DIRECTION OF TAPE TRAVEL



**A = Sound portion of video tape leader**



**B = Video portion of video tape leader**

The picture and sound sequences are shown related on a time basis. There is separation of the picture and sound records on the recorded tape as defined in American Standard Specifications of the Audio Recording Magnetic Tape Recordings, C98.3-1963.

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\* Universal Decimal Classification

**3.2** Simultaneously, an aural identification of the information specified in Section 3.1 should be recorded under the same conditions as defined in Section 2.2.

**4. Cue Timing Signals**

**4.1** Audio cue signals, as described below, shall be recorded on the audio program track following the aural identification signals specified in Section 3.

**4.1.1** The audio cue tone signals shall consist of a series of 400 cps  $\pm$  5 percent bursts, each of 1/2-second duration, occurring at one-second intervals over the range from ten or more seconds ahead of the program material to two seconds ahead. The recording level shall be as defined in Section 2.2.

**4.1.2** In addition, a steady component of the audio cue tone shall be recorded approximately 20 db (decibels) below the level used in Section 4.1.1 above, starting with the first tone burst and ending with the last one, to leave a two-second silent interval before the start of program material.

**4.2** A visual signal shall be recorded during the entire period of the steady component of

the above-described audio tone (or sync and setup) only shall be recorded during the two-second interval of the tone bursts to the start of program material. The recording level shall be as defined in Section 2.1.

If a visual cue timing signal is used, it shall be coincident with and identify the audio cue signal. See Section 4.1.1.

**5. Continuity of Recorded Material**

Continuity of recorded material shall be maintained with the video alignment signal. This continuity shall be maintained by continuous recording or by splicing, provided that the requirements of Section 2.1 are fulfilled.

**6. Run-Out Signal**

**6.1** There shall be at least 10 seconds of blank tape (or sync and setup) recorded immediately following the conclusion of the program material.

**6.2** The run-out signal shall be recorded during the entire period of the steady component of the audio cue tone (or sync and setup) only shall be recorded during the two-second interval of the tone bursts to the start of program material. The recording level shall be as defined in Section 2.1.

American Standard Specifications of the  
**Records for 2-In. Video Magnetic Tape  
 Recordings**

**ASA**  
 Reg. U.S. Pat. Off.  
**C98.3-1963**  
 \*UDC 681.85:621.397.5

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**1. Scope**

pertains to the audio records  
 Proposed American Standard  
 Video, Audio and Tracking  
 on 2-In. Video Magnetic

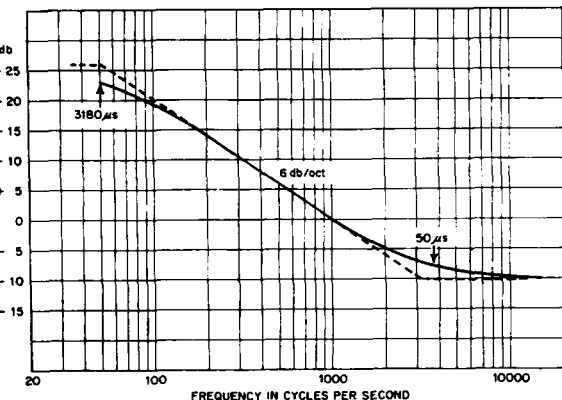
**3. Electrical Characteristics**

The reproducing characteristics as herein  
 specified for the audio records on 2-in. video  
 magnetic tape recordings apply to both 15  
 in. per second and 7.5 in. per second linear  
 tape speeds. The recordings shall be made  
 such that the proper reproducing character-  
 istic shall correspond to Section 2.80, Stand-  
 ard Reproducing Characteristic, of the National  
 Association of Broadcasters Recording and  
 Reproducing Standards for Mechanical,  
 Magnetic, and Optical Recording and Repro-  
 ducing—1953. This section is reproduced  
 below:

"It shall be standard that a Standard Repro-  
 ducing System is one having an "ideal" re-  
 producing head,<sup>1</sup> the EMF of which is ampli-

**Mechanical Characteristics**

separation shall be 9.250  
 with the audio record on the  
 the corresponding picture  
 the path distance between the  
 dio recording heads shall be  
 between the point of intersec-  
 erse and longitudinal center  
 magnetic gap, with the video  
 ed at the angle of rotation  
 t at the center of the audio



**2-In. Video Magnetic Tape Standard Reproducing Characteristic at 15 in./sec, June, 1953.**

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 of Motion Picture and Television Engineers

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fied in an amplifier with a response curve  
 having the following characteristic:

At a tape speed of 15"/second: The re-  
 sponse curve shall be that which results  
 from the superposition of three curves; one  
 that falls with increase of frequency at the  
 rate of 6 db per octave; this curve to be  
 modified at low audio frequencies by a  
 curve that falls with decrease of frequency  
 in conformity with the admittance of a  
 series combination of a capacity and a re-  
 sistance having a time constant of 3180  
 microseconds; and this same curve to be

modified at high audio fre-  
 quency by a curve that rises with increas-  
 in conformity with the ad-  
 admittance of a parallel combination of a ca-  
 pacity and a resistance having a time con-  
 stant of 50 microseconds. The combined  
 characteristic is shown in Figure 6."

<sup>1</sup>An "ideal" reproducing head is defined as  
 a head the losses of which are negligible. With a  
 head this means that the gap is short and the  
 tape is long compared to the relevant wave-  
 length. In the material of the head are small. With  
 used in practice, an equalization to compen-  
 sate for the losses must be added to the replay amplifier.

**American Standard**

**Speed of 2-In. Video Magnetic Tape**

**1. Scope**

This standard specifies the rate of travel of  
 2-in. wide video magnetic tape in video-tape  
 recorders.

**2. Rate of Tape Travel**

The average rate of travel of the tape in a  
 video-tape recorder is 16 (n) video tracks per  
 second, where n is the vertical synchronizing  
 pulse repetition rate. This is a nominal rate of  
 960 video tracks per second for recordings  
 made in accordance with Proposed American

**Standard Dimensions of Video  
 Tracking Control Records on  
 Magnetic Tape C98.6.** The  
 nominal linear speed is 15 in. per s-  
 econd. secondary nominal linear speed  
 is 7.5 in. per second.

**Note:** The vertical synchronizing  
 pulse rate, n, is nominally 60 pulses  
 per second for monochrome transmission  
 and 52.5 pulses per second for color trans-  
 mission. For color transmission, the  
 vertical synchronizing pulse rate is  
 proportional to the frame rate.

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