

ANSI/SMPTE 161-1986
Revision and Redesignation of
ANSI PH22.161-1980

American National Standard for motion-picture film (8-mm type S)— magnetic striping

Approved June 4, 1986

Sponsor: Society of Motion Picture and Television Engineers

1. Scope

This standard specifies the location and dimensions of the magnetic recording stripe and the balance stripe applied to 8-mm motion-picture film with one row of 8-mm Type S perforations.

2. Referenced American National Standard

This standard is intended to be used in conjunction with the following American National Standard:

ANSI PH22.149-1981, Dimensions for 8-mm Motion-Picture Film Perforated 8-mm Type S, 1R

3. Dimensions

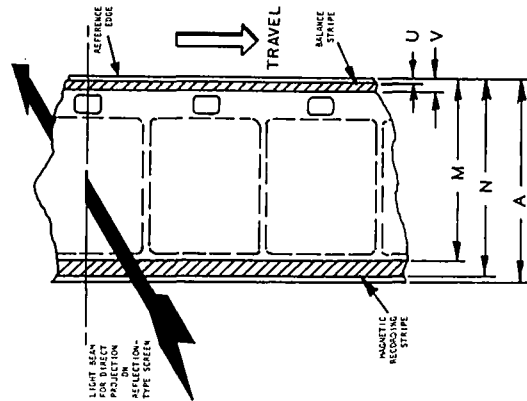
3.1 The location and dimensions of the magnetic recording stripe and the balance stripe shall be as given in the figure and table.

3.2 The magnetic stripe shall be on the side of the film which will be toward the light source when used on a projector arranged for direct front projection on a reflection-type screen.

3.3 The magnetic stripe shall be adjacent to the unperforated edge and is intended for the audio record. The narrow stripe adjacent to the stripe may be a stripe of magnetic or non-magnetic material of such thickness that the balance and recording stripes project above the surface of the film to substantially the same degree.

4. Film Stock

The film stock used shall be safety type, cut and perforated in accordance with ANSI PH22.149-1981.



Film As Seen Looking Toward Lens

Dimensions	Inches	Millimeters
A	0.314	nom 7.98
M*	0.285 ± 0.002	7.24 ± 0.05
N*	0.312 ± 0.002	7.92 ± 0.05
U	0.003 ± 0.003	0.08 ± 0.08
V	0.015 ± 0.003	0.38 ± 0.08

*See Note.

NOTE: Notwithstanding the tolerance on Dimensions M and N, the width of the stripe, Dimension N minus M, shall be 0.0250 in (0.635 mm) minimum.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of publication. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute. Printed in USA

Copyright © 1986 by the Society of Motion Picture and Television Engineers. Reprinted by permission.

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

SMPTE RECOMMENDED PRACTICE

RP 51-1986

Screen Luminance and Viewing Conditions for 8-mm Review Rooms



1. Scope

This practice specifies the screen luminance level and characteristics of the projection screen and the viewing conditions for 8-mm review rooms.

2. Viewing Prints for General Application

The luminance and conditions specified in American National Standard for Motion-Picture Film—Screen Luminance and Viewing Conditions—Indoor Theater Projection, ANSI/SMPTE 196M-1986, shall apply to the review room for 8-mm prints intended to be viewed in a conventional theatrical manner; i.e., front projection in a darkened room. This is essentially 16 ± 2 footlamberts (55 ± 7 candelas per square meter).

3. Viewing Prints for Special Purposes

3.1 Because of the multitudinous applications of 8-mm prints, they are occasionally intended to be viewed under conditions quite different from those defined in ANSI/SMPTE 196M-1986. The most common departures include the following:

(a) prints used as a background moving image in the design of a public place rather than as the focus of a viewer's attention as in a movie theater

- (b) prints used as a point of purchase (P.O.P.) selling tool in retail stores or trade exhibitions
- (c) prints used as a selling or instructional tool in compact, suitcase-style, rear-screen projectors
- (d) prints used in airplane cabins for entertainment of passengers
- (e) prints used in public locations for instruction or entertainment under high ambient-light levels
- (f) prints used in the home
- (g) prints used for photographic instrumentation data analysis

Experience has shown that modifications to the viewing conditions such as those above usually introduce more stringent limitations upon print density, color balance, etc., such that some prints that would be accepted under the conditions specified in ANSI/SMPTE 196M-1986 become less satisfactory for those modified viewing conditions.

3.2 Prints intended for special applications should be judged in a review room with a screen that simulates the special purpose as closely as possible.

Appendix

(This Appendix is not part of the SMPTE Recommended Practice, but is included for information only.)

Prints are judged best on the type of screen to be used by the end user. Among the types of flat screens commonly used for 8-mm prints are plastic or glass rear screens, matte white vinyl screens, and lenticular vinyl screens. Specially formed screens are also used. The rear support member of these screens will have a concave curvature from side to side only or be curved in two directions; i.e., from side to side and from top to bottom. These formed curved screens will have surfaces ranging from silver-colored lithographic foils to vinyl materials embossed with lenticles.

These screens have various gains. Gain is a measure of reflectance. The matte white is arbitrarily designated to have a gain of approximately 1 for reference. For accurate comparisons, it has been determined that matte white screens have an actual gain in the range of 0.95 to 0.98.

Gain screens (those with a gain above 1) are available as treated screens which are flat as well as those embossed with lenticles.

Flat lenticular screens have gains ranging from 2 to as high as 20, depending on the design of the lenticles and the screen material used. Flat gain screens which are not lenticular, such as the pearlescent surface, have gains from 1.2 to 2.5.

Special formed screens have gains ranging from 6 to 19 depending on the surface material used (flat or lenticular) and the spherical radius used in the rear support member.

Acceptable viewing angles of gain screens decrease inversely with increasing gain.

Revision of RP 51-1974
Approved 9 July 1986

Copyright © 1986 by the
SOCIETY OF MOTION PICTURE AND TELEVISION ENGINEERS
595 West Hartsdale Avenue, White Plains, NY 10607, (914) 761-1100

SMPTe RECOMMENDED PRACTICE

RP 9-1986

Dimensions of Double-Frame 35-mm 2x2 Slides for Precise Applications in Television



Page 1 of 3 pages

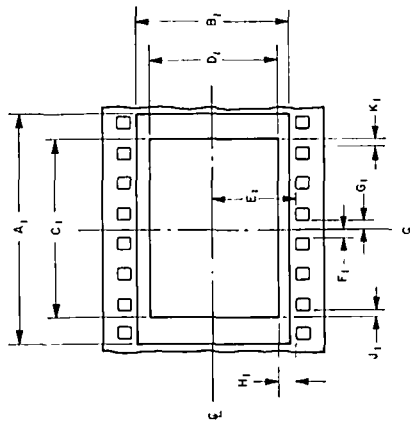


Fig. 1
Location of Image on Film

Introduction

The use of 2x2 slides has increased enormously in many television stations. The handling of these slides is or will be by automatic or remote methods. Slides containing titles or geometric material must not tilt. In many sequences, slides bear related subject matter and it is necessary to lap-dissolve between them. Under these conditions, it is important that the material be accurately located on the film clip and that the film clip be accurately located in the mount. This is achieved in this practice by locating the picture information relative to the sprocket holes of the film clip and then using the sprocket holes to locate the clip in the mount. The dimensions and tolerances specified below are based on the fact that information on successive slides will register in a suitable television slide projector within the equivalent of ± 5 television lines in a horizontal and vertical direction when the Datum B and Datum C edges of the mount are against the stops in the projector.

Television scanned area has an aspect ratio of 4:3. The mask dimensions shown in Fig. 2 are sufficiently larger than those of the scanned area to permit convenient use.

1. Scope

- 1.1 This practice specifies dimensions and tolerances for a double-frame 35-mm film clip and an associated 2x2-in mount, which are intended to ensure that picture information is accurately and consistently positioned in a suitable slide projector.
- 1.2 The slide mount described in Section 3 represents one suitable method for attaining accurate and consistent positioning of picture information in a suitable slide projector. The use of alternate methods of mounting the film clip to within the same accuracy shall be considered as meeting the requirements of this practice.
- 1.3 This practice is not intended to replace or to void American National Standard for Television—Image Areas and Mounts for Slides and Opaque, ANSI/SMPTe 91-1985, or American National Standard Dimensions for Projector Slides, ANSI PH3.33-1977 (R1985).

Copyright © 1986 by the
 SOCIETY OF MOTION PICTURE AND TELEVISION ENGINEERS
 595 West Hartsdale Avenue, White Plains, NY 10607, (914) 761-1100

Revision of RP 9-1985
 Approved 31 July 1986

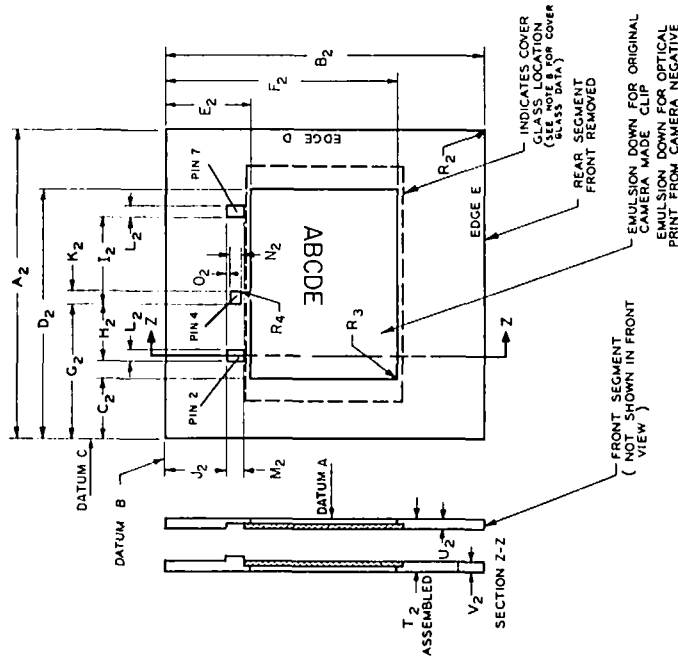


Fig. 2
Slide Mount

Table 2

Dimensions	Inches	Millimeters
A ₂	1.984 ± 0.004	50.39 ± 0.10
B ₂	1.984 ± 0.004	50.39 ± 0.10
C ₂	0.3780 ± 0.0020	9.601 ± 0.051
D ₂	1.6960 ± 0.0020	40.792 ± 0.051
E ₂	0.5244 ± 0.0020	13.320 ± 0.051
F ₂	1.4196 ± 0.0020	36.820 ± 0.051
G ₂	0.8602 ± 0.0017	21.849 ± 0.043
H ₂	0.3681 ± 0.0020	9.350 ± 0.051
I ₂	0.5659 ± 0.0010	14.374 ± 0.025
J ₂ *	0.3831 ± 0.0025	9.731 ± 0.064
K ₂	0.0768 ± 0.0005	1.951 ± 0.013
L ₂	0.0656 ± 0.0010	1.666 ± 0.025
M ₂	0.1088 ± 0.0005	2.764 ± 0.013
N ₂	0.1000 ± 0.0010	2.540 ± 0.025
O ₂	0.0036 ± 0.0020	0.091 ± 0.051
R ₂	0.062 max	1.57 max
R ₃	0.062 max	1.57 max
R ₄	0.018 ± 0.002	0.46 ± 0.05
T ₂	0.120 max	3.05 max
U ₂	0.060 + 0	1.52 + 0
V ₂	0.060 + 0	1.52 + 0
	0.005	0.13
	0.005	0.13

*See Note 5.

2. Double-Frame 35-mm Film Clip

- 2.1 The film for double-frame 35-mm film clips to be mounted and used in compliance with this practice shall be in accordance with American National Standard for Motion Picture Film (35 mm) — Perforated KS, ANSI/SMPTE 139-1986, and shall be of low-shrinkage safety film base.
- 2.2 The location of the image on the film and the length of the film clip shall be in accordance with Fig. 1 and Table 1 (see Note 10).

3. Slide Mount

- 3.1 The mount for the double-frame 35-mm film clip shall be manufactured in accordance with Fig. 2 and Table 2.
- 3.2 Slide mounts produced in accordance with this practice shall meet the dimensional tolerances of Fig. 2 and Table 2 for at least one year following manufacture.
- 3.3 In the event that both halves of the mount are hinged together, the hinge shall be located along Edge E. In the absence of a hinge, Datum B shall be identified in an appropriate manner on the external edge of the mount.

Notes

1. The surfaces indicated by Datum A shall be plane within 0.002 in (0.05 mm).
2. The edges indicated by Datums B and C and Edge D shall be straight within 0.002 in (0.05 mm).
3. Datums B and C and Edge D shall be perpendicular to Datum plane A within 1 degree.
4. Datum C and Edge D shall be perpendicular to Datum B within 0.002 in (0.05 mm).
5. Pins 2 and 7 must not depart from Dimension J₂ by more than 0.0020 in (0.051 mm) with respect to each other.
6. The pins must maintain their indicated dimensions at least 0.010 in (0.25 mm) beyond the emulsion position.
7. The pins should extend through the film clip but must not project beyond either exterior surface of the slide mount.
8. Cover glass should be built into the mount on each side of the film surface. This glass should be nominally 0.030 in (0.76 mm) thick and should be treated to reduce Newton's rings where film contacts the glass. When the mount is assembled, there should be sufficient space between the cover glasses to accommodate a film thickness of 0.006 in (0.15 mm) in a snug manner.
9. Material shrinkage and other practical considerations should be taken into account when choosing dimensions and tolerances for manufacturing purposes. The dimensions and tolerances in Table 2 provide a guide for the final product.
10. The recommended emulsion position is that of an original reversal camera film.
11. Slide mounts manufactured in accordance with the reference edges specified as Datums B and C will have minimum position variations among different mounts when these edges are against the projector stops. When Edges D and E are against the projector stops, slightly poorer positioning accuracy results due to the added dimensional tolerances of A₂ and B₂.