standards and recommended practices

Proposed SMPTE Recommended Practices

Two Proposed Recommended Practices are published here for a trial period and public review. Comments on these Practices should be addressed to Alex E. Alden, Staff Engineer, at Society Headquarters prior to March 11. If no adverse criticism is received by that date, the proposals will be submitted to the Board of Governors, for approval.

Proposed Recommended Practice RP 9, Dimensions of Double-Frame 35mm 2 × 2 Slides for Precise Applications in Television, specifies a slide which positions the film clip through the use of the perforation holes themselves. The increased use of 2 × 2 slides in television stations has prompted the necessity for a method to locate the images accurately in the television slide projector. The slide described is being used quite successfully and does register successive images with ±5 television lines.

Proposed Recommended Practice RP 22, Specifying Graph Paper Used in Inter-Laboratory Exchange of Plotted Sensitometric Data, is an attempt to adopt the use of a common type of plotting paper so that quick and accurate comparisons of sensitometric results can be made among laboratories.—*A. E. A.*

Approved SMPTE Recommended Practices

Published here for your information are two SMPTE Recommended Practices approved by the Society's Board of Governors on October 1, 1965.

Both RP 19-1965, Specifications for 8mm Registration Test Film and RP 20-1965, Specifications for 16mm Registration Test Film describe the technical specifications for test films supplied by the Society as REG-8 and REG-16.

The SMPTE would appreciate any personal influence to promote the use of these Practices and Test Films where such action is appropriate and proper. Copies of these and all SMPTE Recommended Practices may be acquired from Society Headquarters upon request.—*A. E. A.*

PROPOSED

SMPTE *RECOMMENDED PRACTICE RP 9*

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

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 recommended 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 Figure 2 are sufficiently larger than those of the scanned area to permit convenient use.

1. Scope

1.1 This recommended practice specifies dimensions and tolerances for a double-frame 35mm film clip and an associated 2x2 inch 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 recommended practice.

1.3 This recommended practice is not intended to replace or to void American Standard Slides and Opaques for Television Film Camera Chains, PH22.94-1954, or American Standard Dimensions for Lantern Slides, Z38.7.19-1950.

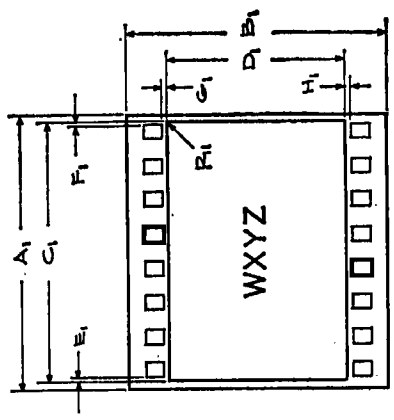

Fig. 1
Location of Image on Film

Table 1

Dimensions	Inches	Millimeters
A_1	1.496 ± 0.004	38.00 ± 0.10
B_1*	1.377 nom	34.98 nom
C_1	1.429 ± 0.012	36.30 ± 0.30
D_1	0.964 ± 0.012	24.49 ± 0.30
E_1-F_1	0 ± 0.004	0 ± 0.10
G_1-H_1	0 ± 0.004	0 ± 0.10
R_1	0.016 max	0.41 max

*For information only

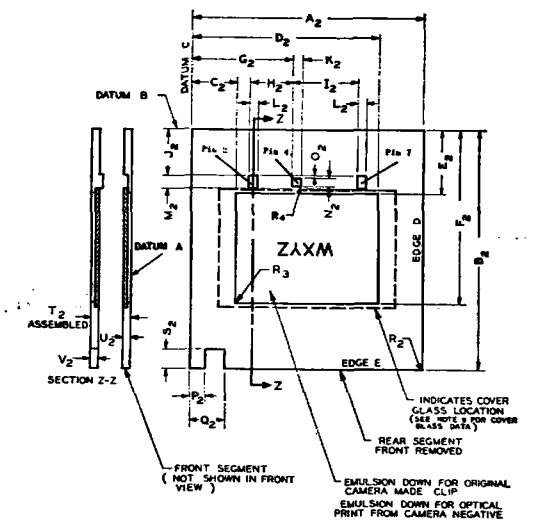

Fig. 2
Slide Mount

2. Double-Frame 35mm Film Clip

2.1 The film for double-frame 35mm film clips to be mounted and used in compliance with this prattice shall be in accordance with American Standard Dimensions for 35mm Motion-Picture Film, KS-1870, PH22.36-1964, or American Standard Dimensions for 35mm Motion-Picture Film, DH-1870, PH22.1-1964, and shall be of low-shrinkage safety film base.

2.2 The camera used for exposure shall produce an image on the film the dimensions of which are in accordance with American Standard Picture Sizes for Roll and 35mm Still-Film Cameras, PH3.39-1961.

2.3 The location of the image on the film and the length of the film clip shall be in accordance with Figure 1 and Table 1. (See Note 11.)

3. Slide Mount

3.1 The mount for the double-frame 35mm film clip shall be manufactured in accordance with Figure 2 and Table 2.

3.2 Slide mounts produced in accordance with this recommended practice shall meet the dimensional tolerances of Figure 2 and Table 2 for at least one year following manufacture.

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	1.6060 ± 0.0020	40.792 ± 0.051
E_2	0.5244 ± 0.0020	13.320 ± 0.051
F_2	1.4496 ± 0.0020	36.820 ± 0.051
G_2	0.8602 ± 0.0017	21.849 ± 0.048
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
P_2	0.180 max	4.57 max
Q_2	0.330 max	8.38 max
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
S_2	0.150 max	3.81 max
T_2	0.115 ± 0.005	2.92 ± 0.13
U_2	0.060 ± 0.002	1.52 ± 0.05
V_2	0.060 ± 0.002	1.52 ± 0.05

*See Note 6

Notes

1. The surfaces indicated by Datum A shall be plane within 0.002 in. (0.05mm).
2. The edges indicated by Datums B and C and Edge D shall be straight within 0.002 in. (0.05mm).
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. (0.05mm).
5. Dimensions P_2, Q_2, S_2, and V_2 define an area within which a notch may be provided to indicate the proper position of the mount in a magazine or projector. When the film is inserted in the mount as shown in Figure 2 and the mount is placed in a normal film projector to produce a proper image on the screen, the notch will be down and away from the lamp. In this position the notch may be used as a mechanical interlock.
6. Pins 2 and 7 must not depart from Dimension J_2 by more than 0.0020 in. (0.051mm) with respect to each other.
7. The pins must maintain their indicated dimensions at least 0.010 in. (0.25mm) beyond the emulsion position.
8. The pins should extend through the film clip but must not project beyond either exterior surface of the slide mount.
9. Cover glass should be built into the mount on each side of the film surface. This glass should be nominally 0.030 in. (0.76mm) 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. (0.15mm) in a snug manner.
10. 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.
11. The recommended emulsion position is toward the lamp for a normal projector. This position corresponds to that of an original reversal camera film.
12. 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 A_2 and B_2.