RP 32-1995
Revision of RP 32-1991

SMPTE RECOMMENDED PRACTICE

Specifications for 8-mm Type S Test Film for Projectors and Printers

1 Scope

This practice specifies the content and dimensions of an 8-mm type S test film useful in checking the performance of motion-picture projectors and printers. Its use is described in annex A.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this practice. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this practice are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

ANSI/SMPTE 154-1993, Motion-Picture Film (8-mm Type S) — Projectable Image Area and Projector Usage

ANSI/SMPTE 157-1994, Motion-Picture Film (8-mm Type S) — Camera Aperture Image and Usage

ANSI/SMPTE 168-1991, Motion-Picture Film (16-mm) — Perforated 8-mm Type S, (1-4)

3 Dimensions

3.1 The dimensions and location of the target areas shall be as specified in figures 1 and 2. These values apply when the film is conditioned and measured at 70 °F (21°C), 50% relative humidity.

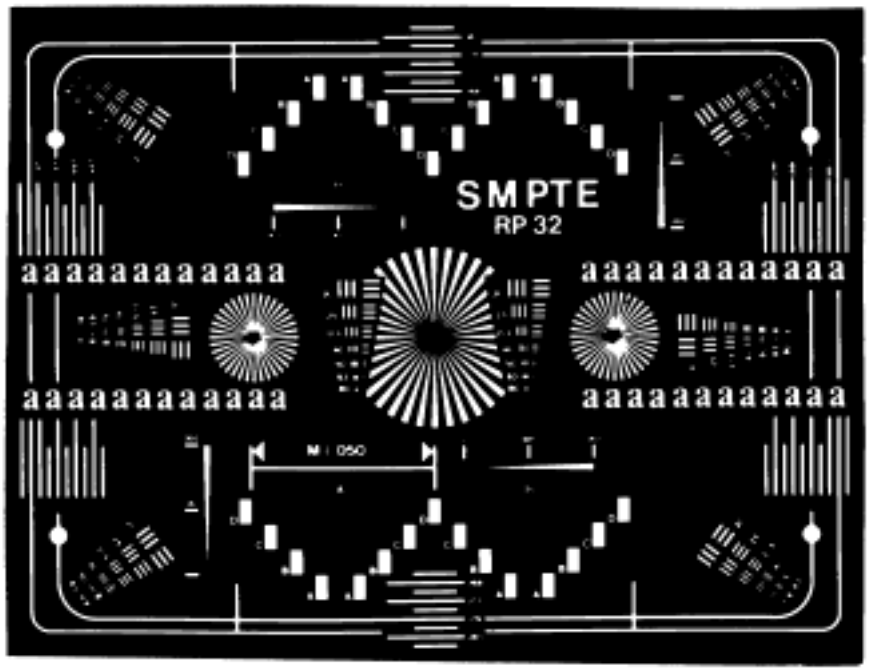

Figure 1 – Reproduction of test pattern

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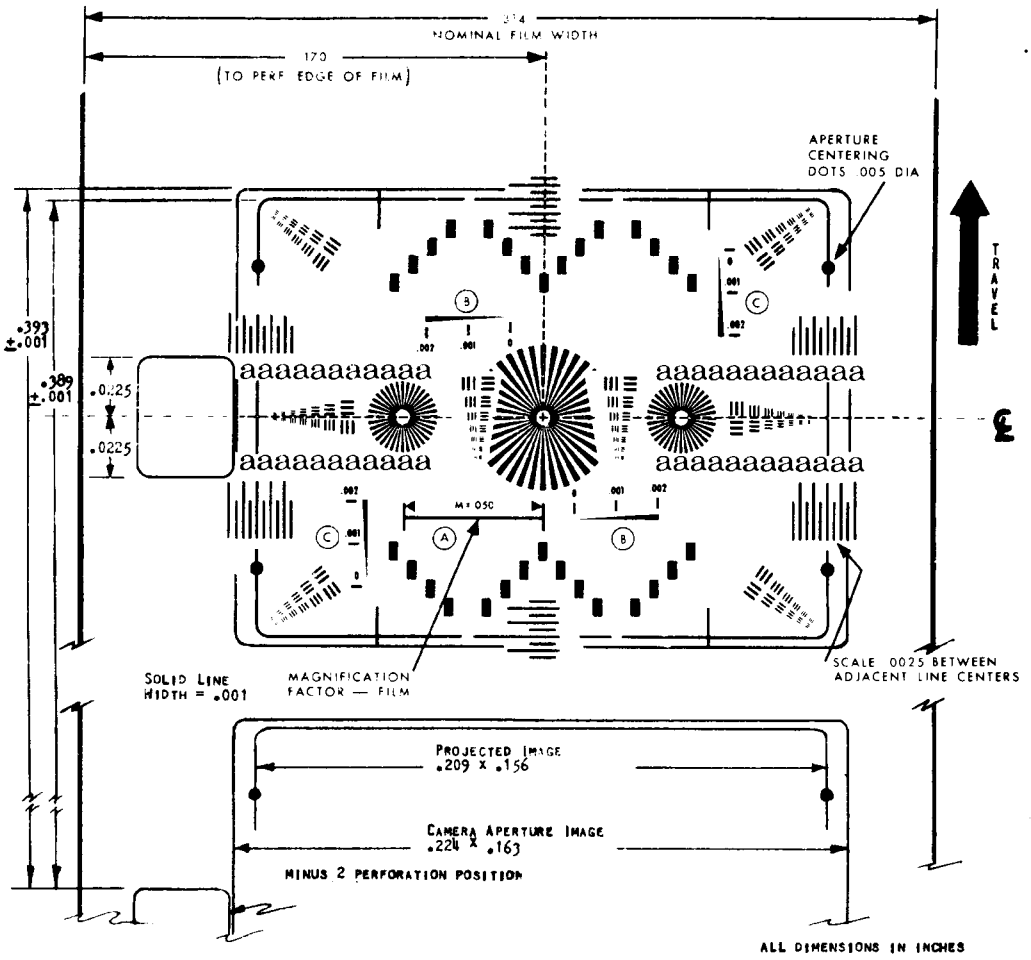

Figure 2 – Test pattern dimensions

3.2 The general tolerance for all dimensions shall be ± 0.0005 in (0.013 mm), unless otherwise specified.

3.3 The minus–2 perforation position used for dimensional reference is two perforations following the perforation adjacent to the image.

4 Description

4.1 The test film shall be produced as a camera original on high-contrast, high-definition motion-picture film, cut and perforated in accordance with ANSI/SMPTE 168. It shall be processed to yield a dye image.

4.2 The camera and projector image areas shown on the test film shall meet the requirements for the minimum camera aperture image and the nominal projected image in accordance with ANSI/SMPTE 157 and ANSI/SMPTE 154.

4.3 The target shall be photographed at a magnification which results in dimension M at Ⓐ of 0.050 in (1.27 mm) on the film. When this is done, the solid lines have a width of 0.001 in (0.03 mm) ± 5%.

4.4 The vertical and horizontal frame-to-frame placement of the target on the film should be consistent to ensure its usefulness for steadiness measurements. When its placement is measured according to 3.1 above, the frame-to-frame variability of the placement of the image shall be within ± 0.002 in (0.005 mm) vertically and horizontally.

Annex A (informative)
Additional data

A.1 Visual tests

The following quantitative visual tests can be performed:

Tests	Projector	Printer		
		Contact		Optical
		Continuous	Step	Step
Steadiness (jump and weave)	X	X*		X X
Aperture alignment	X	X	X	X
Double-exposure alignment		X	X	X
Shutter adjustment (travel ghost)	X			X
Framing accommodation	X			X
Focus	X			X
Resolution	X	X	X	X
Field flatness	X	X	X	X

*The perforation pitch of the test film is not optimum for continuous contact printers and its value for this purpose may be limited.

A.2 Magnification

If the image of the test film target is projected to 30 in x 40 in (762 mm x 1016 mm), it will be enlarged 192 times.

A.3 Steadiness

Wedges for measurement of vertical steadiness B and horizontal steadiness C taper from 0 to 0.002 in (0.05 mm) wide, with an intermediate position of 0.001 in (0.03 mm). The outer sides of the B wedges and the inner sides of the C wedges are parallel to the horizontal and vertical sides of the frame respectively.

A.4 Aperture centering and size

The inner rectangle represents the nominal projectable area and the center of the large pie is located at midpoints horizontally and vertically. The groups of short lines along the border indicate distances from the center of the aperture and are spaced at intervals of 0.0025 in (0.064 mm). Circular dots near the corners are 0.005 in (0.13 mm) in diameter and can be used for rapid aperture-centering checks. If some portion of all dots is visible, centering would be within 0.0025 in.

A.5 Travel ghost

The A, B, C, and D blocks are used to determine travel ghost. Travel ghost is a blurring effect seen on the screen and evidenced by vertical tails or light streaks added to the projected images of the more transparent areas on the test film. It is caused by the projector shutter being out of synchronism with the intermittent mechanism. If the ghost is above the blocks, the shutter closes late; if the ghost is below the blocks, the shutter opens early.

A.6 Framing accommodation

The longer lines of the group of lines at the top and bottom of the vertical aperture centerline are 0.005 in (0.13 mm) apart. By centering the aperture and framing above and below, the range of framing is determined. The height of each travel ghost block is 0.007 in (0.18 mm). This permits the extent of framing to be measured beyond the limits of the dimensional lines.

A.7 Resolution

Resolving power in lines per millimeter can be read directly from the test target to the limit permitted by the film stock used. The ratio of line spacings of adjacent resolution patterns is equal to 10 1/10 (i.e., the logarithm to the base 10 of the ratio of adjacent line spacings is 0.10).

A.8 Field flatness

Side-to-side out-of-focus is determined from the difference in softness of the a's at the sides. Quantitative differences can be determined from resolution charts. Pie charts at the middle of the field permit quick focus adjustment and detection of in- and out-of-focus effects.

A.9 Striping

The user may apply magnetic record and balance stripes to this film by post-process means. If this is done, the dimensions of the film image should be checked to determine if change has been produced by the striping process. It is anticipated that striping will not significantly affect the performance of the test film. However, the user is cautioned that the proximity of the film image to the limiting aperture may be altered due to striping thickness. Also, the frictional characteristics of the test film may be changed, which could affect film transport in the user's apparatus.