

Standards and Recommended Practices

Approved American National Standards

The American National Standards Institute approved two American National Standards on November 4, 1987: ANSI/SMPTE 145-1988, Motion-Picture Film (65-mm) — Perforated KS; and ANSI/SMPTE 143-1988, Motion Picture Film (8-mm Type R) — Length of Film on Camera Spools — 25-Ft Capacity. Copies of the standards are available for a nominal fee from the American National Standards Institute, 1430 Broadway, New York, NY 10018.

Approved SMPTE Recommended Practices

Two SMPTE Recommended Practices were approved by the Society's Executive Committee for Standards Approval: RP 32-1987, Specifications for 8-mm Type S Test Film for Projectors and Printers; and RP 91-1987, Specifications for 70-mm Projec-

tor Alignment and Screen Image Quality Test Film. SMPTE Recommended Practices are available from Society Headquarters for \$3.00 each.

Approved International Standard

The International Organization for Standardization (ISO) has approved an International Standard, the technical content of which is published here for your information. ISO 7832-1987, Cinematography — Photoelectric Output Factor of Photographic-Type Audio-Level Test Films — Measurement and Calibration, is in accord with American National Standard for Motion-Picture Film — Measurement of Photoelectric Output Factor — Photographic Audio Level Test Films, ANSI/SMPTE 183M-1985. This material is reproduced with permission from the ISO and is copyrighted by the American National Standards Institute, 1430 Broadway, New York, NY 10018, from which copies are available.

— *Sherwin H. Becker, Director of Engineering*

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American National Standard for motion-picture film (8-mm type R)— length of film on camera spools— 25-ft capacity

Approved November 4, 1987

Sponsor: Society of Motion Picture and Television Engineers

1. Scope and Purpose

1.1 This standard describes the total length and the photographically useful length of raw film supplied on an 8-mm Type R motion-picture camera spool of 25-ft (7.6-m) nominal capacity described in ANSI/SMPTE 107-1987.

1.2 The purpose of this standard is to provide a uniform basis for the operation of automatic or nonadjustable footage counters in cameras.

2. Referenced American National Standard

This standard is intended for use in conjunction with the following American National Standard:

ANSI/SMPTE 107-1987, Motion-Picture Equipment (8-mm Type R)—Double 8-mm Camera Spools—25-Ft Capacity

3. Length of Film

The total length of film on the spool shall be 33.0 ± 0.5 ft (10.06 ± 0.15 m). A leader and trailer are required to protect the middle portion of the film from fog in loading and unloading. The leader and trailer shall be 4.0 ± 0.3 ft (1.22 ± 0.09 m) in length but these tolerances shall not be used in such a way as to yield less than the nominal 25 ft (7.6 m) useful length for picture taking.

NOTE: Spool capacity is based on a film thickness of approximately 0.006 in (0.15 mm).

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



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

3. Description

3.1 The test film shall be produced as a camera original on high-contrast, high-definition motion picture film, cut and perforated in accordance with American National Standard for Motion Picture Film (16-mm)—Perforated 8-mm Type S, (1-1), ANSI/SMPTE 168-1986. It shall be processed to yield a dye image.

3.2 The camera and projector image areas shown on the test film shall meet the requirements for the

1. Scope

This practice specifies the content and dimensions of an 8-mm Type S test film used in checking the performance of motion picture projectors and printers. Its use is described in the Appendix.

2. Dimensions

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

2.2 The general tolerance for all dimensions shall be ± 0.0005 to ± 0.0013 mm, unless otherwise specified.

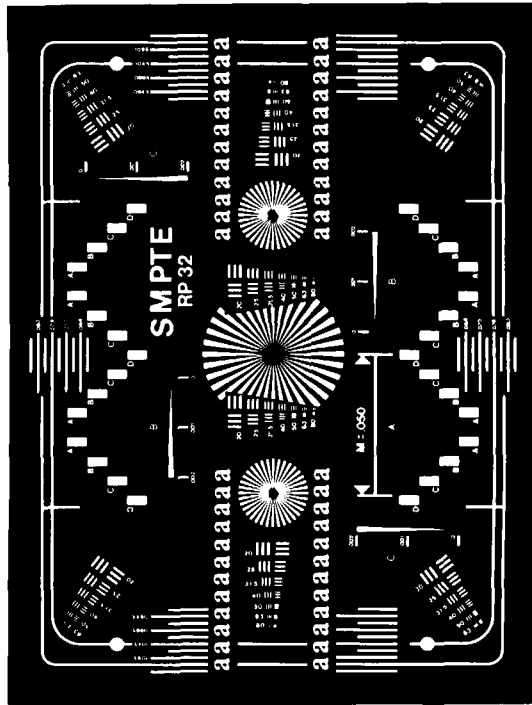


Fig. 1

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Approved October 26, 1987

minimum camera aperture image and the nominal projected image in accordance with American National Standard Dimensions of Camera Aperture Image on Super 8 Motion-Picture Film, ANSI PH22-157-1971 (R1981), and American National Standard Dimensions of Projectable Image Area on 8-mm Type S Motion-Picture Film, ANSI PH22-154-1982.

3.3 The target shall be photographed at a magnification which results in Dimension M at ϕ 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) \pm 5 percent.

3.4 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 2.1 above, the frame-to-frame variability of the placement of the image shall be within \pm 0.0002 in (0.005 mm) vertically and horizontally.

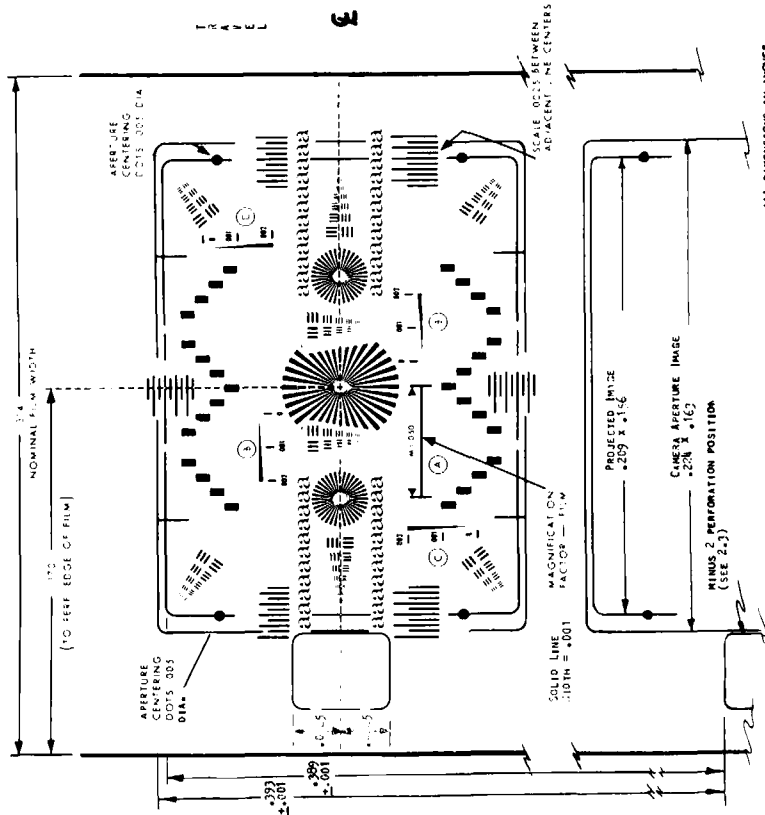


Fig. 2

Note: A test film made in accordance with this practice is available from the Society of Motion Picture and Television Engineers.

Appendix

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

A1. Visual Tests. The following quantitative visual tests can be performed.

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

A2. Magnification. If the image of the test film target is projected to 30 x 40 in (762 x 1016 mm), it will be enlarged 192 times.

A3. 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.

A4. 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 (0.061 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.

A5. 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 synchronization 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.

A6. 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.

A7. 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).

A8. Field Flatness. Side-to-side out-of-focus is determined from the difference in softness of the chart 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.

A9. Striping. The user may apply magnetic record and balance strips 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.