

SMPTE RECOMMENDED PRACTICE**RP 35-1985**

*Specifications for Theater Test Film for
35-mm Photographic Monaural Motion-Picture
Projection Audio Reproducing Systems*



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Appendix

(The Appendix is not a part of this SMPTE Recommended Practice, but is included for information purposes only.)

From a typical location in the room or auditorium where the audio is reproduced, the observer should determine whether or not the sound characteristics of the complete reproducing system are acceptable by listening to the audio reproduced from the test film when the volume control is set to reproduce the dialogue at normal level.

If the picture and audio quality are displeasing and the dialogue unintelligible, then either (a) the equipment should be adjusted as shown in the technical manual provided by the manufacturer or (b) the room in which the audio is reproduced is unsuitable. Methods by which these factors may be determined should be included in the instruction sheet.

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1. Scope

This practice describes a test film for subjective evaluation and adjustment of 35-mm photographic monaural motion-picture projectors and audio reproducers and for judging the acoustical environment of the auditorium or room in which the audio is reproduced.

2. Test Film

- 2.1 The test film shall contain an audio record and accompanying picture for sound identification only which are samples selected from studio feature pictures by an appropriate Engineering Committee of the Society of Motion Picture and Television Engineers. The following samples are typical of those which may be included:

- (1) Main title music
- (2) Dialogue
- (3) Piano
- (4) Orchestral music
- (5) Vocal music
- (6) Sweep frequency tones
- (7) A short cross-modulation section

The material is intended to provide a subjective evaluation of such reproducing system characteristics as:

- (1) General frequency response
- (2) Volume range
- (3) System noise
- (4) Power-handling capacity
- (5) Wow and flutter
- (6) Distortion and vibration

- 2.2 Each film shall be provided with head and tail leaders, as specified in American National Standard for Motion-Picture Film — Leaders and Cue Marks — 35- and 16-mm Audio Release Prints, ANSI PH22.55-1983.

- 2.3 The main title shall include the issue number of the film so that revised versions may be easily identified.

- 2.4 The test film shall be made available in 35-mm format. The length of the film shall be approximately 400 ft.

3. Related Standards

- 3.1 Audio Record. The audio record shall comply with American National Standard for Motion-Picture Film (35-mm) — Photographic Audio Records — Release Prints, ANSI PH22.40-1984.

- 3.2 Projectable Image. The accompanying picture shall comply with American National Standard for Motion-Picture Film (35-mm) — Projectable Image Area — Motion-Picture Prints, ANSI PH22.195-1984.

- 3.3 Motion-Picture Film Stock. The prints shall be made on color stock, preferably polyester, splice free, of the low-shrinkage, safety type in accordance with American National Standard Specifications for Motion-Picture Safety Film, ANSI PH22.31M-1980, and cut and perforated in accordance with long-pitch dimensions specified in American National Standard Dimensions for 35-mm Motion-Picture Film Perforated KS, ANSI PH22.139-1980.

- 3.1 Photographic Audio. The photographic audio negative shall include a 9-kHz section of cross-modulation test, as specified in SMPTE Recommended Practice on Cross-Modulation Tests for Variable-Area Photographic Sound Tracks, RP J04-1981, and the prints from this negative shall be measured to read percent cross-modulation distortion. Image spread on the prints should not present more than 2 percent cross-modulation distortion.

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

SMPTE RECOMMENDED PRACTICE**RP 82-1985***Specifications for 16-mm Projector Alignment
and Screen Image Quality Test Film*

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Introduction

This test film is designed to provide the same degree of performance evaluation for 16-mm projection systems that is presently available for 35-mm projection systems utilizing SMPTE Recommended Practice on Specifications for 35-mm Projector Alignment and Screen Image Quality Test Film, RP 40-1983. It is also intended as an engineering tool to permit quantitative measurements of projector adjustments that affect the visual image.

1. Scope

- 1.1 This practice describes the artwork and dimensions for constructing a test chart to be used as the original subject for the manufacture of the test film.
- 1.2 The practice also describes the types of photographic materials and densitometry necessary to manufacture the film.

2. Description

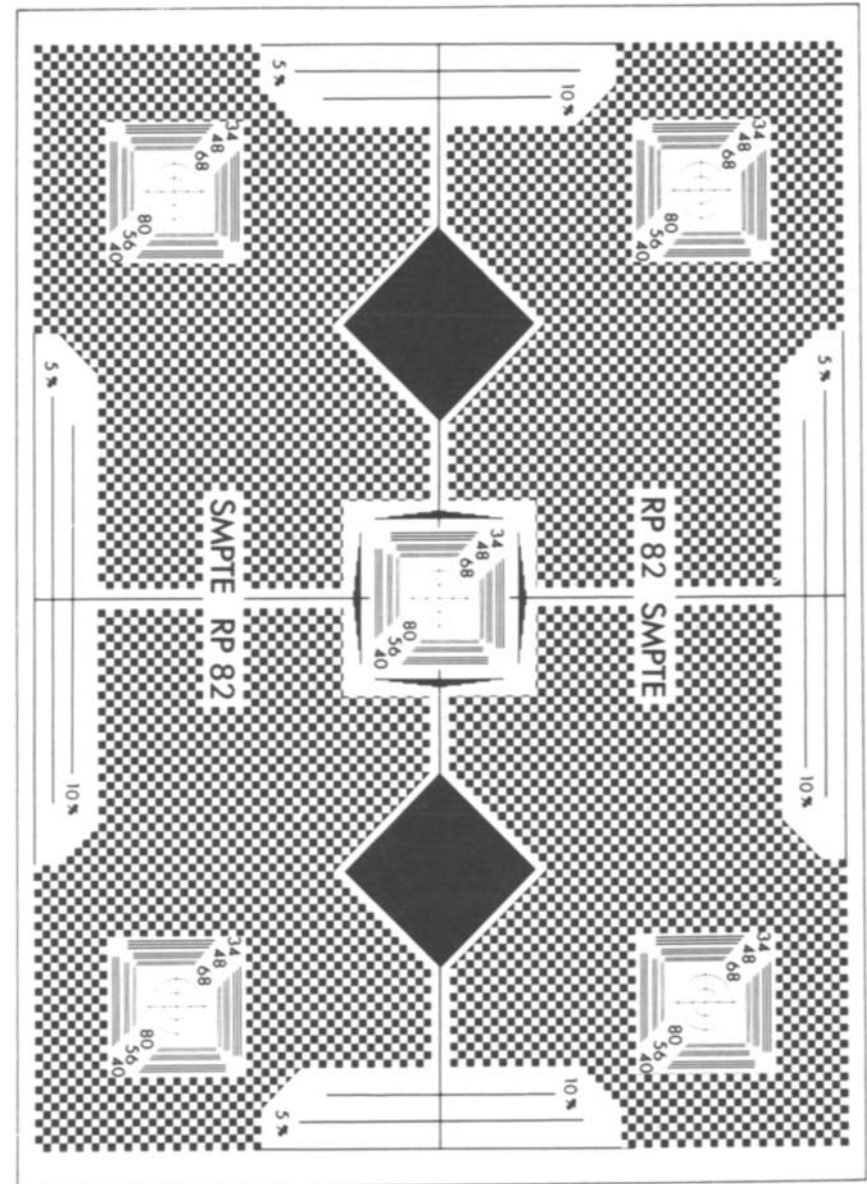
- 2.1 The test pattern on the film shall be as shown in Figs. 1 and 2.
- 2.2 The background checkerboard pattern provides a 50-percent transmission of the incident radiant energy which is more nearly consistent with the projection performance of an average release print. The pattern also provides a quick reference for overall image focus and quality.
- 2.3 The resolution charts are modified high-contrast NBS Resolution Charts with a luminance ratio of 100:1 which have been trimmed to exclude low-order resolution below 34 lines per millimeter (see Fig. 3).

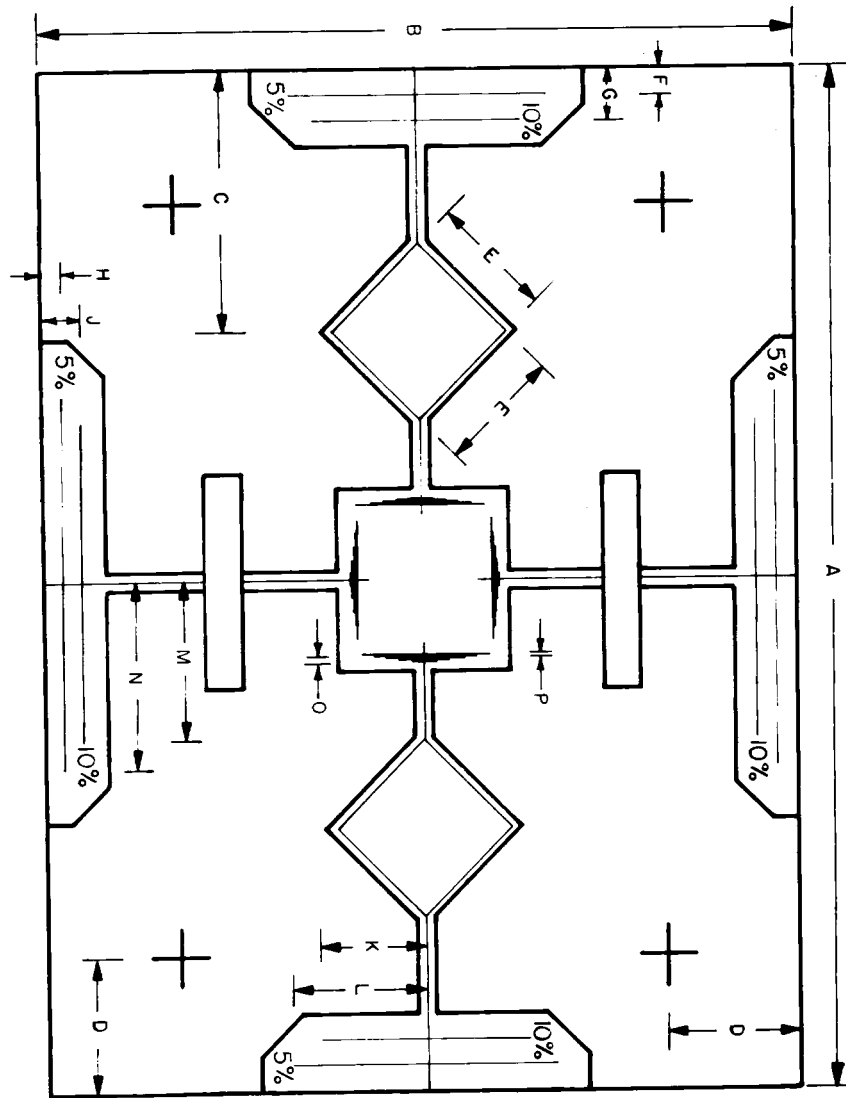
- 2.4 The wedge steps placed on each side and above and below the center resolution chart are designed to measure quantitatively vertical image unsteadiness and horizontal weave. The actual length of the wedges and their placement around the center resolution chart are not critical, but the total width of the wedge shall equal the size of one background square, and each step shall be 20 percent of the total width of the wedge. (One square equals 1 percent of the image height.)
- 2.5 The diamond patches are to be inserted as a densitometric control in the exposure and processing of the original test film.
- 2.6 The test chart shall be photographed as a 16-mm camera original on a film manufactured in accordance with American National Standard Dimensions for 16-mm Motion-Picture Film Perforated 1R, ANSI PH22.109-1980. The film shall be capable of a modulation transfer of at least 80 percent at 80 lines per millimeter when exposed to a high-contrast resolution chart at a reduction ratio of 25:1 and then properly processed. In preparation, the film shall be used in such equipment and with such procedures as will maintain optimum resolution and steadiness.
- 2.7 The chart shall be photographed with a camera aperture as specified in American National Standard for Motion-Picture Film (16-mm) — Camera Aperture Image, ANSI PH22.7-1983.
- 2.8 The test film shall be produced as a 16-mm camera original.
- 2.9 The vertical centerline of the pattern shall be 0.314 ± 0.002 in (7.98 ± 0.05 mm) from the reference edge of the film shown in ANSI PH22.7-1983.

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Fig. 1





Dimensions	Inches	Millimeters
A	0.380 ± 0.002	9.65 ± 0.05
B	0.285 ± 0.001	7.24 ± 0.03
C	0.10 nom	2.5 nom
D	0.05 nom	1.3 nom
E	0.0175 nom	1.206 nom
F	0.0095 ± 0.0005	0.241 ± 0.013
G	0.0190 ± 0.0005	0.483 ± 0.013
H	0.0071 ± 0.0005	0.180 ± 0.013
J	0.0142 ± 0.0005	0.361 ± 0.013
K	0.04 nom	1.0 nom
L	0.05 nom	1.3 nom
M	0.06 nom	1.5 nom
N	0.07 nom	1.8 nom
O*	0.00285	0.0724
P*	0.00057	0.0145

*Derived from Sec. 2.4.

3. Dimensions

- 3.1 The dimensions of the original test chart shall be 25X the dimensions listed in Fig. 2. (This requirement is necessary because the NBS Resolution Test Charts are designed for a 25X reduction.)
- 3.2 The original or 1:1 copy of the NBS Resolution Test Charts shall be cropped as specified in Fig. 3. The modification shall be similar to that illustrated in Fig. 4.
- 3.3 The modified NBS Resolution Test Charts shall be placed on the original test chart as specified by the dimensions in Fig. 2.

- 3.4 The gray patches shall be at least the dimensions specified in Fig. 2 in order to be readable in current 1-mm aperture densitometers after a 25X reduction.
- 3.5 The checkerboard background on the test chart shall contain 100 squares vertically and 134 horizontally.
- 3.6 The horizontal and vertical lines indicating 5- and 10-percent reductions in image length or height shall be placed on the test target in accordance with the dimensions specified in Fig. 2.

NOTE: A test film conforming to this practice is available from the Society of Motion Picture and Television Engineers.

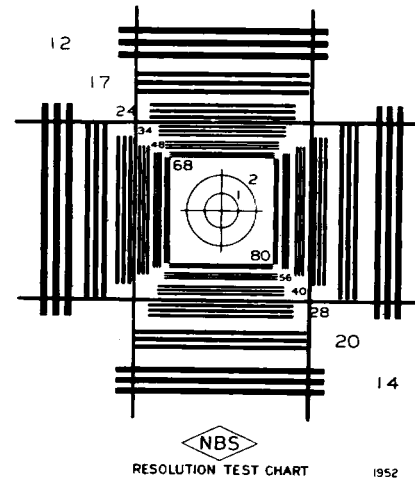


Fig. 3

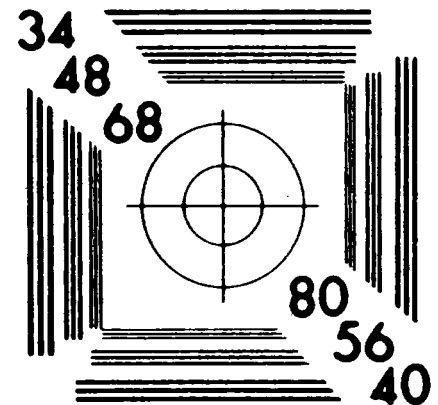


Fig. 4