

SMPTE RECOMMENDED PRACTICE

RP 91-1987



Specifications for 70-mm Projector Alignment and Screen Image Quality Test Film

Page 1 of 4 pages

1. Scope

- 1.1 This practice specifies a test film for quantitative measurements of 70-mm projector alignment and screen image quality.
- 1.2 This practice also describes the artwork and dimensions for a test chart to be used as the original subject for the manufacture of a master negative.

2. Test Film Prints

- 2.1 A reproduction of the test chart is shown in Fig. 1.
- 2.2 The positive resolution charts are modified NBS Resolution Test Charts with a luminance ratio of 100:1 (see Fig. 3).
- 2.3 The area between the logos (SMPTE and 70-PA) is to be used to insert a gray patch, if necessary, as a densitometric control in the exposure and processing of the original negative and subsequent prints.
- 2.4 The test film shall be produced as a 70-mm print with a neutral image on color positive film manufactured in accordance with American National Standard Dimensions for 70-mm Motion-Picture Film Perforated 65 mm, KS-1870, ANSI PH22.119, 1981.

3. Dimensions

- 3.1 The dimensions of the original test chart shall be 25X the dimensions given in the table. This requirement is necessary because the NBS Resolution Test Charts can be prepared for a 25X reduction. For practical purposes, a smaller original chart can be prepared provided that the NBS Resolution Charts can be accurately reduced in size to a known ratio which shall then apply to all the other dimensions on the test chart.

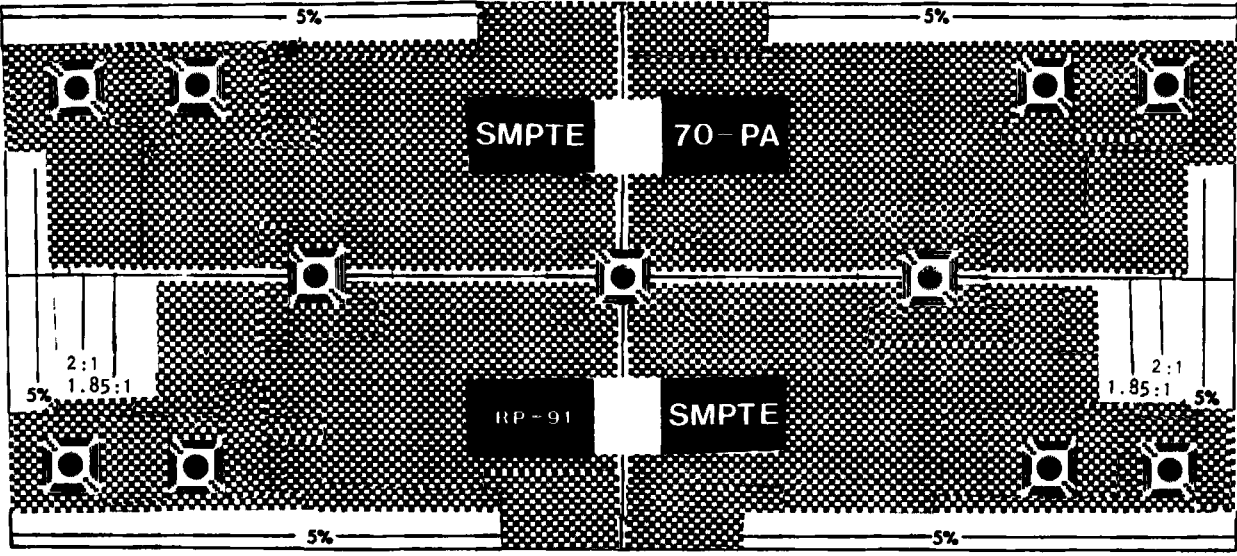


Fig. 1
Reproduction of Test Chart

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- 3.4 The gray patches, along with the SMPTE logo, should be placed midway between the horizontal centerline and the top and bottom of the test chart.
- 3.5 The checkerboard background shall contain 100 squares vertically, and 220 squares horizontally.
- 3.6 The dimensions marked with an asterisk in the table shall be within tolerances of 0.002 in (0.05 mm) on the print. All other dimensions are nominal.

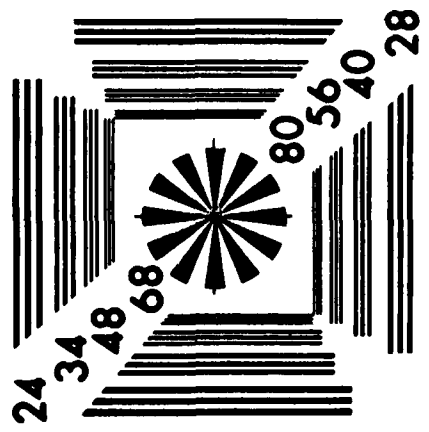


Fig. 3 Resolution Chart

- 3.2 The modified NBS Resolution Test Charts shall be placed on the original test chart as specified by the dimensions in Fig. 2.
- 3.3 The densitometric control area specified in 2.3 shall be not less than 5.0 x 5.0 mm on the 70 mm film.

*See 3.6 for tolerances.

Appendix

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

Control of Resolution and Definition in the Preparation of Test Prints

- A1. It has been found that producing test prints with resolution at 80 lines per millimeter requires careful selection of the materials and equipment used, and careful control of the operations. Inasmuch as a measuring tool should be better than the system it is designed to measure, it is desirable that the test film meet the specifications detailed herein.
- A2. The background checkerboard pattern provides for a 50 percent transmission of the incident radiant energy, so as to be more nearly consistent with the projection performance of an average release print.
- A3. Image densities referred to in this Appendix are intended for a more precise definition of one system shown to be applicable, and are measured in accordance with American National Standard Density Measurements—

- A4. Selection of a film for producing the dye-image print must take into consideration not only the requirements of 2.1.1 but also image spread characteristics compatible with the negative and projection characteristics suitable for theoretical projection.
- A5. Preparation of the test prints with a resolution and steadiness adequate for the film's purpose requires great care in the selection and operation of the printer. Satisfactory results can be obtained only with a step-contact printer employing registration pins.

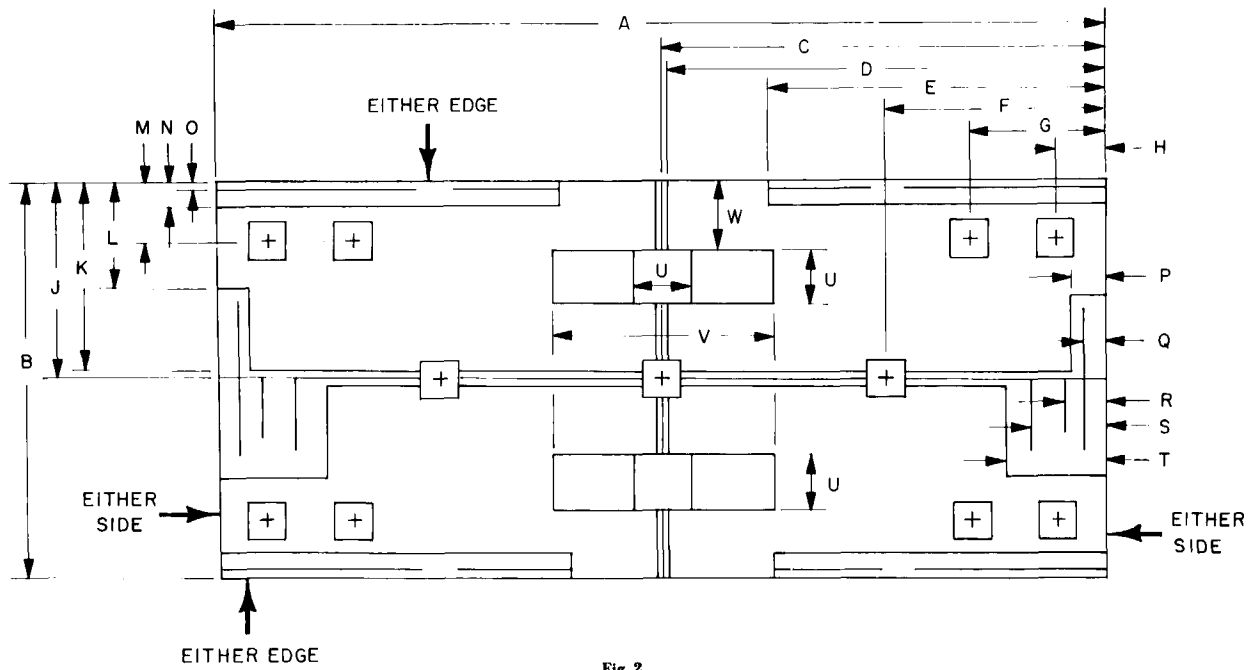


Fig. 2 Test Chart Dimensions