RP 27.2-1989
Revision of RP 27.2-1983

SMPTE RECOMMENDED PRACTICE

Specifications for Operational Registration Test Pattern for Multiple-Channel Television Cameras

1 Scope

Format, dimensions, and optical densities are specified for a test pattern transparency to be used as an operational alignment tool for multiple-channel color television cameras.

2 Purpose

This practice specifies a test pattern designed to provide a television picture signal suitable for aligning, adjusting, and checking multiple-channel color cameras for combined optical, mechanical, and electrical registration.

3 Format

3.1 Pattern

A reproduction of the test pattern is shown in figure 1.

3.2 Grid

The horizontal and vertical black lines of the grid produce a uniformly-spaced grid dividing the picture area into 18 squares vertically and 24 squares horizontally. Half dimensions have been added near the edges of the pattern where registration is most difficult to achieve.

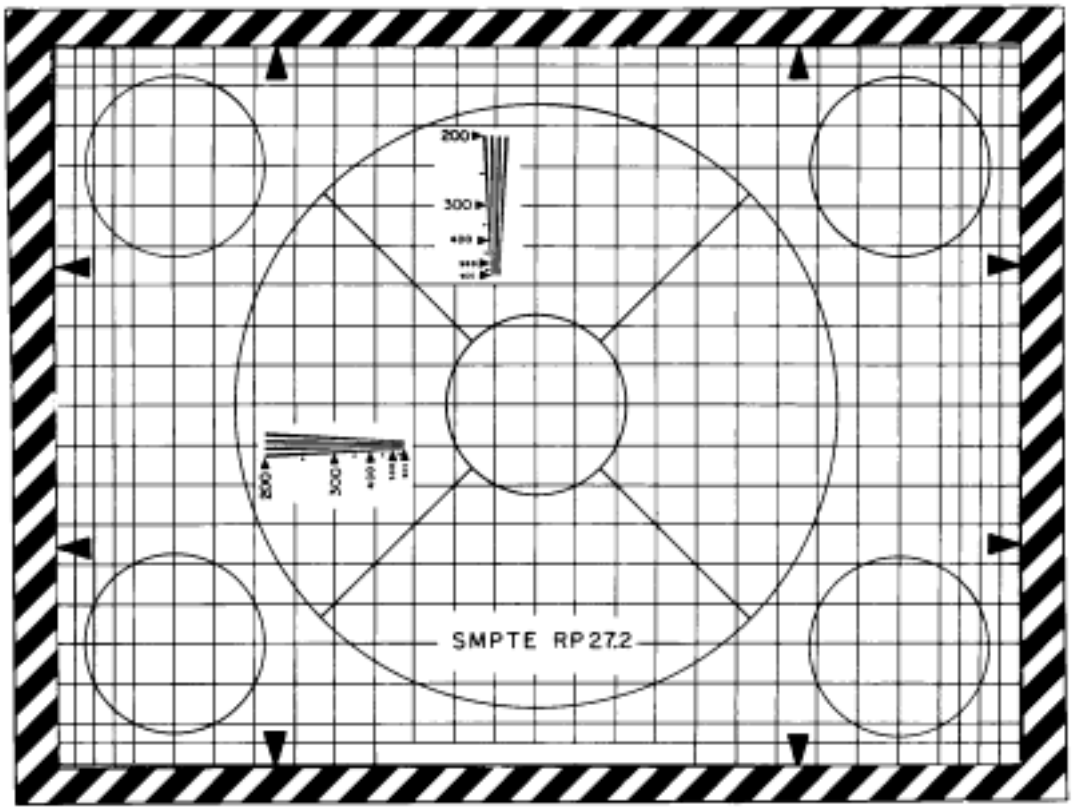

Figure 1 – Reproduction of test pattern

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3.3 Circles and diagonals

Circles and diagonal black lines are provided to center the pattern on the camera tubes and check alignment.

3.4 Resolution wedges

Vertical and horizontal wedges are provided for checking optical and electrical focus and to aid registration.

3.5 Arrows and border

The eight boundary arrows and black-and-white border define the edge of the test pattern area and the scanned area.

3.6 Pattern identification

The identification number of this document shall appear on the pattern as specified in figure 2.

4 Dimensions

4.1 Test pattern

The dimensions of the test pattern shall be as shown in figures 2 through 5, in percentages of frame height and reproduced with a tolerance of ± 0.1 percent of the frame height.

4.2 Image size

The size of the scanned area as indicated by the eight boundary arrows shall be as follows:

4.2.1 2×2-in test slides shall have dimensions as specified in American National Standard for Television — Image Areas and Mounts for Slides and Opaques, ANSI/SMPTE 94-1985.

4.2.2 35-mm test films shall have image dimensions in accordance with American National Standard for Motion-Picture Film (35-mm) — Television Image Area, ANSI PH22.95-1984.

4.2.3 16-mm test films shall have image dimensions in accordance with American National Standard Dimensions for Television Image Area on 16-mm Motion-Picture Film, ANSI PH22.96-1982.

4.3 Black-and-white border

The dimensions of the black-and-white border shall be as follows:

4.3.1 The dimensions (AA and BA) of the black-and-white border for 2×2-in slides are specified as the transmitted image in ANSI/SMPTE 94-1985.

4.3.2 For 35-mm motion-picture films, the black-and-white border shall extend to the dimensions specified by Style A in American National Standard for Motion-Picture Film (35-mm) — Camera Aperture Images, ANSI/SMPTE 59-1989.

4.3.3 For 16-mm motion-picture films, the black-and-white border shall extend to the dimensions specified in American National Standard for Motion-Picture Film (16-mm) — Camera Aperture Image and Usage, ANSI/SMPTE 7-1988.

4.4 Line widths

The width of the grid lines, the circles, and the diagonals shall be 0.167 ± 0.011 percent of the scanned image height.

4.5 Resolution wedges

The resolution portion of the pattern is shown in detail in figure 5. The tolerance of the nominal dimensions of the lines of the wedge shall be ± 0.011 percent of the scanned image height.

4.5.1 The nominal dimensions of the wedge shall be as illustrated in figure 5.

4.5.2 At any given television line number, the ratio of the width of the black half cycle to that of the white half cycle shall be 1.00 ± 0.05.

5 Optical densities

5.1 Optical densities

All optical densities shall be measured in accordance with American National Standard for Photography-Density Measurements — Geometric Conditions for Transmission Density, ANSI PH2.19-1986.

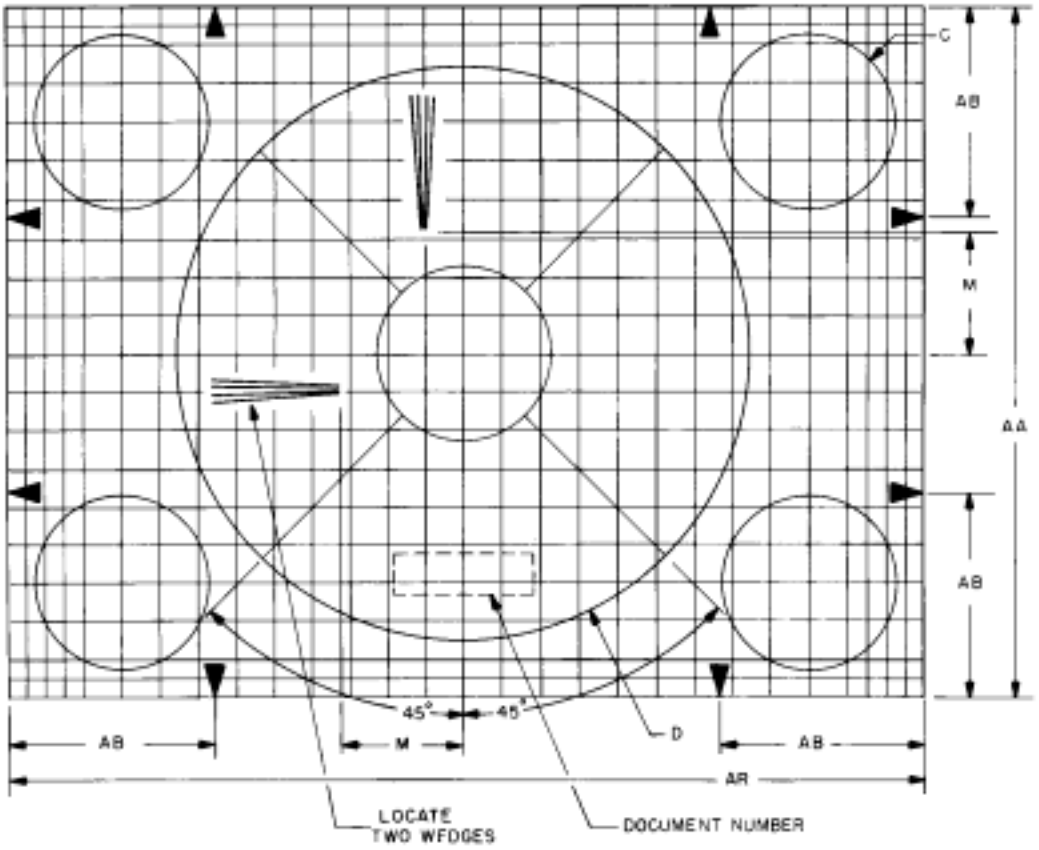

Figure 2 – Location of boundary arrows, circles, wedges and 45° lines

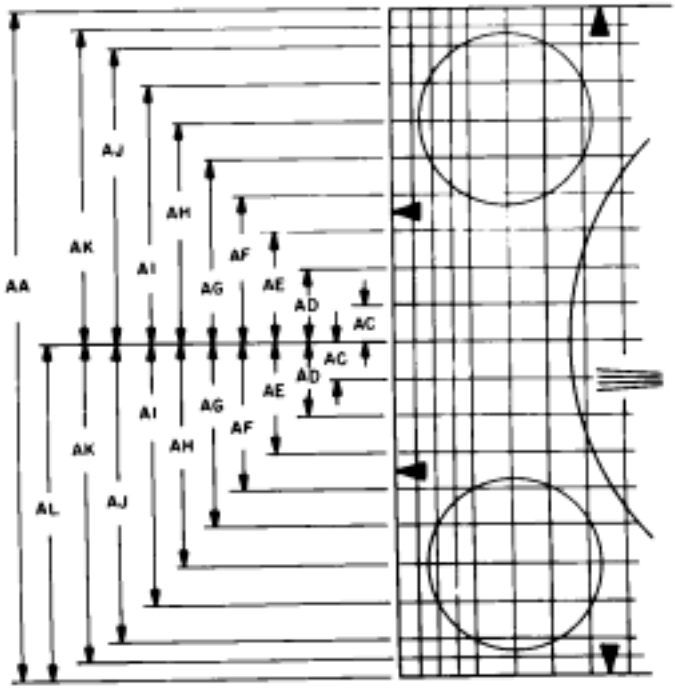

Figure 3 – Location of horizontal grating lines

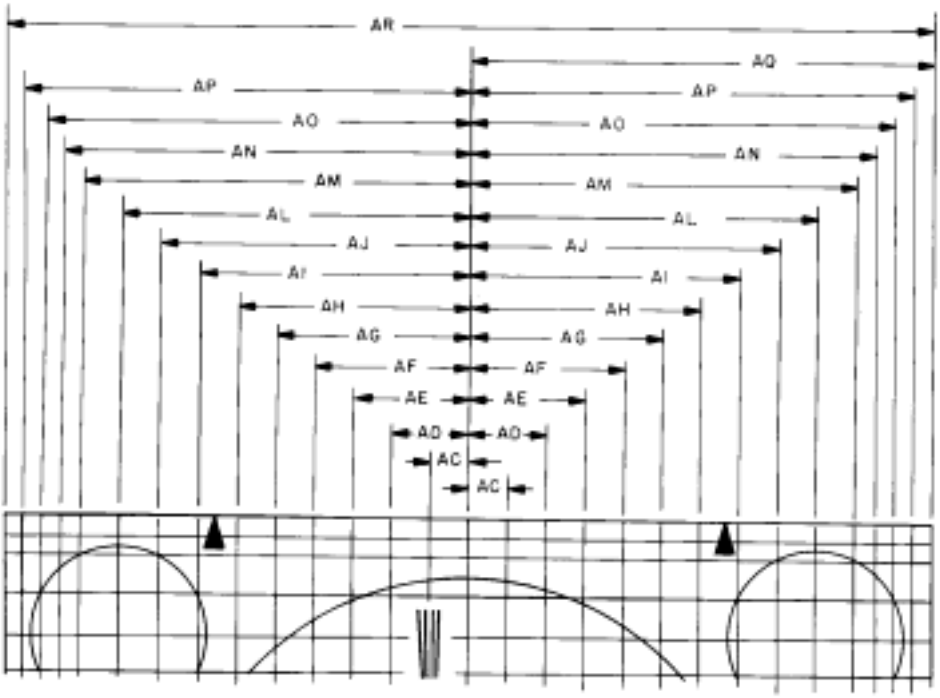

Figure 4 – Location of vertical grating lines

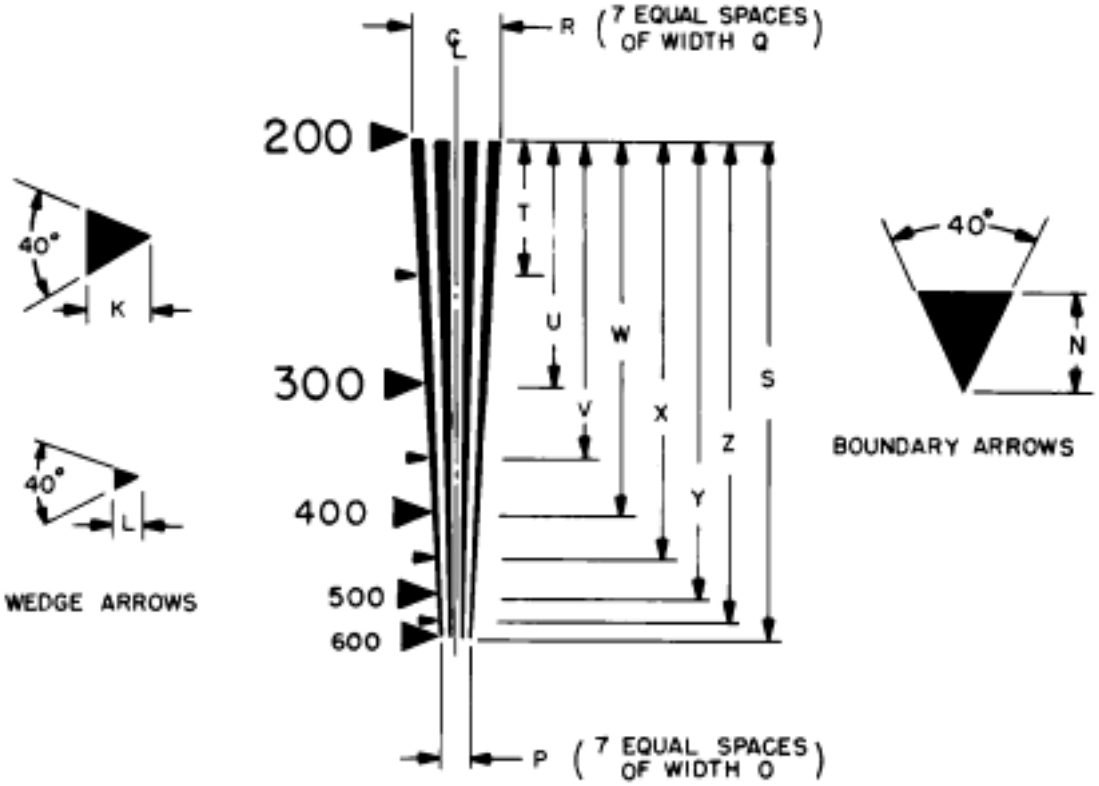

Figure 5 – Wedge detail and boundary arrows

		Inches			
Dimensions	Percentage	8×10	2×2	35-mm	16-mm
AA	100.00000	6.300	0.8430	0.6000	0.2760
AB	30.00000	1.890	0.2529	0.1782	0.0828
AC	5.55556	0.350	0.0468	0.0330	0.0153
AD	11.11111	0.700	0.0937	0.0660	0.0307
AE	16.66667	1.050	0.1405	0.0990	0.0460
AF	22.22222	1.400	0.1873	0.1320	0.0613
AG	27.77778	1.750	0.2342	0.1650	0.0767
AH	33.33333	2.100	0.2810	0.1980	0.0920
AI	38.88889	2.450	0.3278	0.2310	0.1073
AJ	44.44444	2.800	0.3747	0.2640	0.1227
AK	47.22222	2.975	0.3981	0.2805	0.1303
AL	50.00000	3.150	0.4215	0.2970	0.1380
AM	55.55556	3.500	0.4683	0.3300	0.1533
AN	58.33333	3.675	0.4917	0.3465	0.1610
AO	61.11111	3.850	0.5151	0.3630	0.1687
AP	63.88888	4.025	0.5386	0.3795	0.1763
AQ	66.66667	4.200	0.5620	0.3960	0.1840
AR	133.33333	8.400	1.1240	0.8000	0.3680
C	25.00000	1.575	0.2108	0.1485	0.0690
D	83.33333	5.250	0.7025	0.4950	0.2300
K	1.00000	0.063	0.0084	0.0059	0.0027
L	0.50000	0.032	0.0042	0.0030	0.0014
M	17.7777	1.120	0.1499	0.1056	0.0491
N	4.0000	0.252	0.0337	0.0238	0.0110
O	0.1667	0.011	0.0014	0.0010	0.0005
P	1.1667	0.074	0.0098	0.0069	0.0032
Q	0.5000	0.032	0.0042	0.0030	0.0014
R	3.5000	0.221	0.0295	0.0208	0.0097
S	20.0000	1.260	0.1686	0.1188	0.0552
T	6.0000	0.378	0.0506	0.0356	0.0166
U	10.0000	0.630	0.0843	0.0594	0.0276
V	12.8571	0.810	0.1084	0.0764	0.0355
W	15.0000	0.945	0.1264	0.0891	0.0414
X	16.6667	1.050	0.1405	0.0990	0.0460
Y	18.0000	1.134	0.1517	0.1070	0.0497
Z	19.0909	1.203	0.1610	0.1134	0.0527

5.2 Background

The white background shall be nominally clear.

5.3 Grid lines, circles, diagonals, arrows, and lettering shall have a density greater than 1.9.

5.4 Resolution wedges and black-and-white border

The resolution wedges and black-and-white border shall have a black density greater than 1.9 and the white shall be nominally clear.

NOTES

1 The emulsion position shall correspond to the one normally used for the specific format.

2 Test material conforming to this practice is available from the Society of Motion Picture and Television Engineers.