

8. Light Surround

8.1: Light surround is defined as the light, visible to the observer, from a plane or from behind a plane coincident with and surrounding but not including the viewing screen.

8.2: Light surround shall be provided outside the viewing screen mask and over an area at least eight times the area of the viewing screen.

8.3: Light surround shall be of a luminance of three plus or minus one footlamberts.

8.4: The light surround shall be of neutral color and have a color temperature matching the screen color temperature, thus providing a fixed color reference for the observer's eye. (See Appendix A.8.)

9. Decor

9.1: The viewing room decor should give a generally neutral subjective impression, without dominant colors being employed.

9.2: The projector (rear) wall of the room should be black.

9.3: Ambient light should be avoided on the viewing screen.

9.4: Light sources within the room should be of similar color temperature to that of the projector. Incandescent light should be avoided.

9.5: A desk lamp, if used, should be of a cool white fluorescent type, so adjusted that the luminance of white paper on the desk falls between the limits of six and twelve footlamberts.

9.6: For more detailed recommendations on decor, reference should be made to USA Standard PH22.100-1967 (*Jour. SMPTE*, Feb. 1968).

APPENDIX

This appendix is not a part of recommended practice CTP 1-1968, "Viewing Rooms for Evaluation of 16mm Color Film for Television," but is included to facilitate its use.

Table II

	Nominal size	
	19-in	25-in
Height, H	12	16
Mask outside width	18½	24
Mask outside height	14¾	18½

A.2. Screen Characteristics

A.2.1: The screen in the film laboratory screening room, by using a color temperature of 5000°K, will permit the evaluation of film both for television (displayed at D_{6500} for white) and for auditorium projection (displayed usually near 3200°K for white).

A.2.2: To most closely approximate viewing of the film on a standard telecine system, the viewing screen should have a reflectance of approximately twenty percent, this being typical of the reflectance off the face of a TV monitor. The use of a twenty percent reflectance screen will cause the observer to be aware of the loss of picture information in areas of the film of densities in the order of 2.0 or darker. It will also minimize the effects of stray light on the screen. The low-reflectance screen can be incorporated only if the screening projector is capable of a beam output of approximately 500 lumens or greater for 25-inch screens and of 285 lumens or greater for 19-inch screens. Lamphouses containing high-intensity light sources are required for such high beam outputs.

A.2.3: A paint recommended by the National Research Council of Canada for the viewing screen is Velvet Coating No. 104-A 10 white for the high-reflectance screen. The manufacturer is Minnesota Mining & Mfg. Co. For screens of lower reflectance the same paint No. 104-C 10 black should be mixed with the white.

A.5. Screen Mask

A.5.1: The screen mask may be constructed as a light-void lined with black velvet cloth or may be a black matte surface painted with a suitable paint. A National Research Council recommendation for an acceptable paint is Velvet Coating No.

Table III

	Nominal size	
	19-in	25-in
Height, H	12	16
Image outside width	16½	22
Image outside height	12¾	16½

104-C 10 in black, manufactured by Minnesota Mining & Mfg. Co.

A.6. Projected Size of Film

A.6.1: When the projected image size is first being set up, it is suggested that a temporary white cover be placed over the black mask so that the total image size can be adjusted to agree with the requirements of Sec. 6.2.

A.6.2: When the SMPTE alignment and resolution test pattern is projected, the barred area of the pattern will be hidden in the mask, with the area scanned on TV just filling the height of the screen. Note that the kinescope shape does not permit the full scanned area of the test pattern to be displayed.

A.8. Light Surround

A.8.1: The luminance and the color of an appropriate surround can be determined by the use of the screening projector adjusted for 40 fL open-gate, as described in Sec. 3. Insertion of a 1.0 neutral density filter in the projector light path will provide a screen luminance of 4 fL at proper color temperature, the maximum limit of surround luminance. The further addition of a 0.3 neutral density filter will provide 2 fL off the screen or minimum surround luminance. The surround can then be adjusted to fall between these two limits.

A.8.2: Light surround can be obtained by using a 35mm slide projector that has adequate flare characteristics, filtered to provide the proper color temperature. An opaque area added to a clear 35mm slide can then provide a shadow area corresponding to the viewing screen, with the edges of the opaque image being lost in the black mask.

standards and recommended practices

Draft USA Standards

Two Draft USA Standards are published here for a trial period and public review. Comments should be addressed to Alex E. Alden, Staff Engineer, at Society Headquarters before June 30, 1969. The proposals have also been submitted to USASI Standards Committee PH22. Consequently, all comments received through *Journal* publication will be reviewed prior to the conclusion of action by the PH22 Committee. PH22.99, Specifications for 35mm Three-Record Azimuth Alignment Test Film, Magnetic Type, and PH22.114, Specifications for 16mm Azimuth Alignment Test Film, Perforated One Edge, Magnetic Type, are both reaffirmations of the technical content of the previous issues but have been editorially modified to facilitate their use.

Approved SMPTE Recommended Practice

In May 1969, the Society's Board of Governors approved the Recommended Practice which is printed here for your information. RP 35, Specifications for Theater Test Film for Motion-Picture Projection Sound Reproducing Systems, combines data previously specified in USA Standards PH22.60 and PH22.79 which are being withdrawn. 16mm and 35mm test films, made in accordance with this Practice, are available from Society Headquarters. These films are not intended to replace any of the currently available test films, but provide a qualitative check for motion-picture projectors and sound reproducers.

Copies of the document and all SMPTE Recommended Practices may be acquired from Society Headquarters upon request.

16mm Azimuth Alignment Test Film, Perforated One Edge, Magnetic Type

PH22.114

Revision of
PH22.114-1959

1. Scope

This standard specifies a test film having a magnetic sound record to be used for aligning the azimuth of magnetic heads on 16mm magnetic recording and reproducing equipment.

2. Test Film

2.1 The test film shall have an original recording having a wave shape that is approximately sinusoidal. The frequency of the sound record shall be approximately 7 kHz when the film travel rate is 24 perforations per second (approximately 36 ft per minute).

2.2 The sound record shall be recorded at 90° with reference to the edge of the film within ± 3 minutes of arc.

2.3 The recorded level at 7 kHz shall be that level which results from an input current to the magnetic head which is equal to 1 kHz current input which would give a total harmonic distortion of 3 percent when that 1 kHz tone is reproduced.

2.4 The recorded signal uniformity, when reproduced on high-quality equipment and measured with a vu meter, shall be held to a tolerance of ± 0.5 dB. Exception may be made for occasional rapid level fluctuations such as may be caused by "drop-outs."

2.5 The location and dimensions of the sound record shall be in accordance with USA Standard Dimensions for 200-Mil Magnetic Sound Record on 16mm Film Base, Perforated 1R-3000, PH22.97-1964.

2.6 The coated side and direction of travel shall be as specified in USA Standard PH22.97-1964, and the base shall be coated from edge to edge.

3. Film Stock

The film stock used shall be of the low-shrinkage, safety type, cut and perforated in accordance with USA Standard Dimensions for 16mm Motion-Picture Film, 1R-3000, PH22.12-1964.

4. Film Length

The film shall be supplied in 100-ft lengths, stocked and furnished on cores not less than 2 in. in diameter.

5. Identification

The film shall have identification markings at both ends.

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

35mm Three-Record Azimuth Alignment Test Film, Magnetic Type

PH22.99

Revision of
PH22.99-1955

Page 1 of 2 pages

1. Scope

This standard specifies a test film having three magnetic sound records to be used for aligning the azimuth of magnetic heads on 35mm magnetic recording and reproducing equipment where the head width is not greater than 0.200 in.

2. Test Film

2.1 The test film shall have an original recording having a wave shape that is approximately sinusoidal. The frequency of the sound record shall be approximately 8 kHz when the film travel rate is 96 perforations per second (approximately 90 ft per minute).

2.2 The sound record shall be recorded at 90° with reference to the edge of the film within ± 3 minutes of arc.

2.3 The recorded level at 8 kHz shall be that level which results from an input current to the magnetic head which is 1 dB below the 400-Hz current input which would give a total harmonic distortion of 2½ percent when that 400-Hz tone is reproduced.

2.4 The recorded signal uniformity, when reproduced on high-quality equipment and measured with a vu meter, shall be held to a tolerance of ± 0.5 dB. Exception may be made for occasional rapid level fluctuations such as may be caused by "drop-outs."

2.5 The location and dimensions of the sound records shall be in accordance with USA Standard Dimensions for 200-Mil Magnetic Sound Records on 35mm and 17-1/2mm Motion-Picture Film, PH22.86-1962.

2.6 The coated side and direction of travel shall be as specified in USA Standard PH22.86-1962, and the base shall be coated from one row of perforations to the other row, or from edge to edge.

2.7 The recorded signal in each of the three records shall be in exact in-phase relationship to the other two. (See Appendix.)

3. Film Stock

The film stock used shall be of the low-shrinkage, safety type, cut and perforated in accordance with USA Standard Dimensions for 35mm Motion-Picture Film, KS-1870, PH22.36-1964.

4. Film Length

The film shall be supplied in 50-ft lengths or multiples thereof, stocked and furnished on cores not less than 2 in. in diameter.

5. Identification

The film shall have identification markings at both ends.

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

SMPTE RECOMMENDED PRACTICE**RP 35-1969***Specifications for Theater Test Film for
Motion-Picture Projection Sound Reproducing Systems*

Page 1 of 2 pages

1. Scope

This recommended practice describes a test film for qualitatively checking and adjusting motion-picture projectors and sound reproducers and for judging the acoustical properties of the auditorium or room in which the sound is reproduced.

2. Test Film

2.1 The test film shall contain a sound record and accompanying picture for sound reference 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

The material is intended to provide a qualitative check of such reproducing system characteristics as:

- (1) Frequency response
- (2) Volume range
- (3) System noise
- (4) Power-handling capacity
- (5) Flutter

2.2 Each film shall be provided with head and tail leaders, as specified in USA Standard Specifications for Leaders and Cue Marks for 35mm and 16mm Sound Motion-Picture Release Prints, PH22.55-1966.

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

2.4 Subtitles superimposed over each sample shall indicate the particular sound characteristic demonstrated by that portion of the film.

2.5 The test film shall be made available in 35mm and 16mm formats. The length of the film shall be approximately 400 ft for 35mm film and 160 ft for 16mm film.

2.5.1 The accompanying picture on the 16mm version shall be printed from a negative which shall be an optical reduction of the 35mm test film.

2.5.2 The photographic sound record on the 16mm version shall be printed from a negative which shall be rerecorded from the 35mm magnetic original record.

2.5.3 The magnetic sound record on the 16mm version shall be recorded from a 35mm magnetic master recorded from the 35mm magnetic original record.

2.6 The film shall be accompanied by an instruction sheet to facilitate its use.

3. Related Standards

3.1 Sound Record. The sound record shall comply with USA Standard Dimensions of Photographic Sound Record on 35mm Motion-Picture Prints, PH22.10-1967, or USA Standard Photographic Sound Record on 16mm Prints, PH22.11-1957, or USA Standard Picture-Sound Separation in 16mm Magnetic Sound Projectors, PH22.112-1958, and USA Standard Dimensions of 100-Mil Magnetic Striping on 16mm Motion-Picture Film Perforated One Edge, PH22.87-1966.

3.2 Projectable Image. The accompanying picture shall comply with USA Standard Aperture for 35mm Sound Motion-Picture Projectors, PH22.58-1954, or USA Standard Projected Image Area of 16mm Motion-Picture Film, PH22.8-1957.

3.3 Motion-Picture Stock. The film stock used for the prints shall be in accordance with USA Standard Dimensions for 35mm Motion-Picture Film, KS-1870, PH22.36-1964, or USA Standard Dimensions for 16mm Motion-Picture Film, 1R-3000, PH22.12-1964.

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Appendix

(This Appendix is not a part of this Draft USA Standard, but is included to facilitate its use.)

In-phase relationship of the sound records as printed by a multiple-head recorder can be assured if the individual coils of the recording head are similar and are assembled in a similar manner.

This relationship is accomplished by connecting the winding in series so that the end of each coil is connected

to the beginning of the next coil maintaining a consistent direction of winding.

The relationship is also accomplished in a parallel-type connection if the corresponding beginning leads are connected together and the corresponding ending leads are connected together and the direction of winding of each coil is kept consistent with other coils.

PH22.99—NOT APPROVED

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Appendix

(This Appendix is not a part of this SMPTE Recommended Practice, but is included to facilitate its use.)

From a typical location in the room or auditorium where the sound is reproduced, the observer should determine whether or not the sound characteristics of the complete reproducing system are normal by listening to the sound reproduced from the test film when the volume control is set to reproduce the dialogue at normal level and, in the case of 16mm, the tone control is also set at normal.

If the picture and sound 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 sound is reproduced is unsuitable. Methods by which these factors may be determined should be included in the instruction sheet.

NOTE: Test films made in accordance with this recommended practice are available from the Society of Motion Picture and Television Engineers.