REAFFIRMED 2003

SMPTE RECOMMENDED PRACTICE

RP 53-1993
Revision of RP 53-1983

Scene-Change Methods for Printing 35-mm, 16-mm and 8-mm Type S Motion-Picture Film

1 Scope

1.1 This practice specifies the dimensions and location of a scene-change notch or cueing spot for actuating the printer light-change mechanism when printing 35-mm, 16-mm, and 8-mm type S motion-picture films. (See annex A.1 for a frame-count cueing method which is more commonly utilized.)

1.2 Although this practice specifies a notch or a cueing spot for actuating the printer light mechanism, at no time should a film contain both.

2 35-mm motion-picture film

2.1 Scene-change notch

2.1.1 The dimensions and location of the scene-change notch shall be as specified in figure 1 and table 1. (See annex A.2 for alternate method of forward and reverse printing.)

2.1.2 The scene notch centerline shall be 4.500 in (114.30 mm) after the scene change with respect to the direction of film travel through the printer.

2.1.3 For forward and backward printing, a second notch placed in accordance with figure 1 may be added to the opposite edge of the film, and (observing the change in the direction of travel) the centerline distance between the two notches shall be two times dimension A in table 1.

2.2 Scene-change cueing spot

2.2.1 The dimensions and location of the scene-change cueing spot shall be as specified in figure 2 and table 2. (See annex A.3 for alternate method of forward and reverse printing.)

2.2.2 The cueing spot shall be placed 5.97 in (151.6 mm) after the scene change with respect to the direction of film travel through the printer.

2.2.3 The cueing spot preferentially shall be placed on the emulsion side of the film.

2.2.4 The cueing spot shall consist of an adhesive-backed metallic foil (preferably rounded at all four corners).

2.2.5 For forward and backward printing, a second cueing spot placed in accordance with figure 2 may be added to the opposite edge of the film, and (observing the change in the direction of travel) the centerline distance between the two cueing spots shall be two times dimension A in table 2.

3 16-mm motion-picture film

3.1 Scene-change notch

3.1.1 The dimensions and location of the scene-change notch shall be as specified in figure 1 and table 1. (See annex A.2 for alternate method of forward and reverse printing.)

3.1.2 The scene notch centerline shall be centered on the 20th perforation after the scene change (5.99 in [152.1 mm]) with respect to the direction of film travel through the printer.

3.1.3 For forward and backward printing, a second notch placed in accordance with figure 1 may be added to the opposite edge of the film, and (observing the change in the direction of travel) the centerline distance between the two notches shall be two times dimension A in table 1.

Approved May 24, 1993

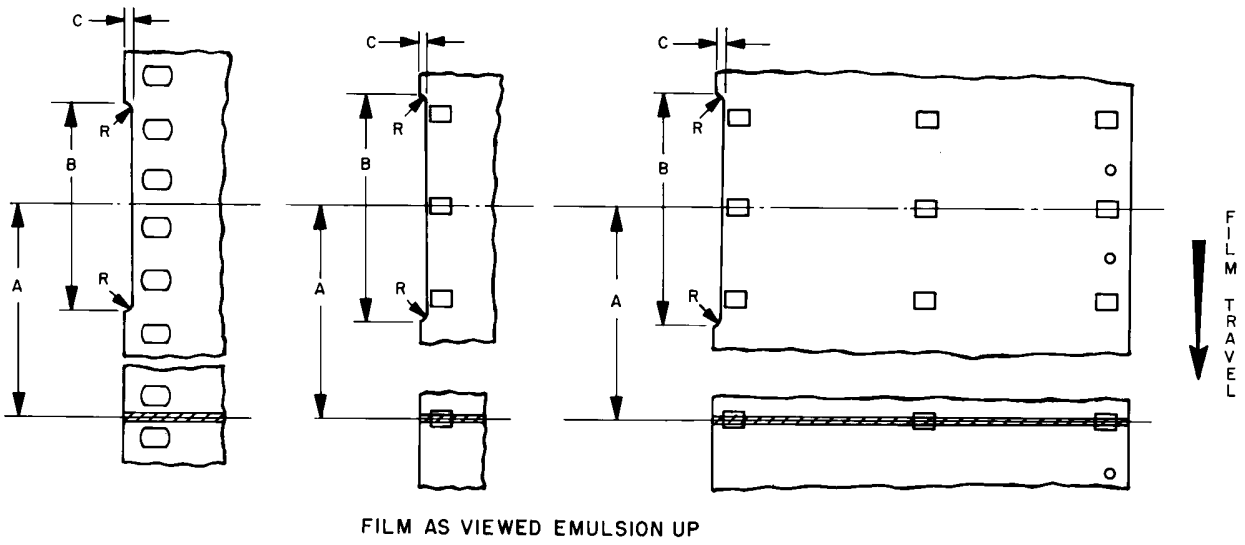

Figure 1 – Notch for 35-mm, 16-mm and 35-mm perforated 16-mm 3R film

Table 1 – Specifications

	Dimensions	Inches	Millimeters
A	35 mm (6 frames)	4.500 ± 0.012	114.30 ± 0.30
A	16 mm (20 frames)	5.99 ± 0.01	152.1 ± 0.3
B	35 mm	1.000 ± 0.012	25.40 ± 0.30
B	16 mm	0.827 ± 0.005	21.01 ± 0.13
C	35 mm	0.047 + 0.000 – 0.007	1.19 + 0.00 – 0.18
C	16 mm	0.020 + 0.005 – 0.004	0.51 + 0.13 – 0.10
R		0.500 + 0.000 – 0.060	12.70 + 0.00 – 1.52

3.2 Scene-change cueing spot

3.2.1 The dimensions and location of the cueing spot shall be as specified in figure 2 and table 2. (See annex A.3 for alternate method of forward and reverse printing.)

3.2.2 The cueing spot shall be placed 20.5 frames (6.14 in [156.0 mm]) after the scene change with respect to the direction of film travel through the printer.

3.2.3 The cueing spot shall be placed on the emulsion side of the film.

3.2.4 The cueing spot shall consist of an adhesive-backed metallic foil (preferably rounded at all four corners).

4 35-mm perforated 16-mm 3R (1-3-0) motion-picture film

4.1 Scene-change notch

4.1.1 The dimensions and location of the scene-change notch shall be as specified in figure 1 and table 1. (See annex A.2 for alternate method of forward and reverse printing.)

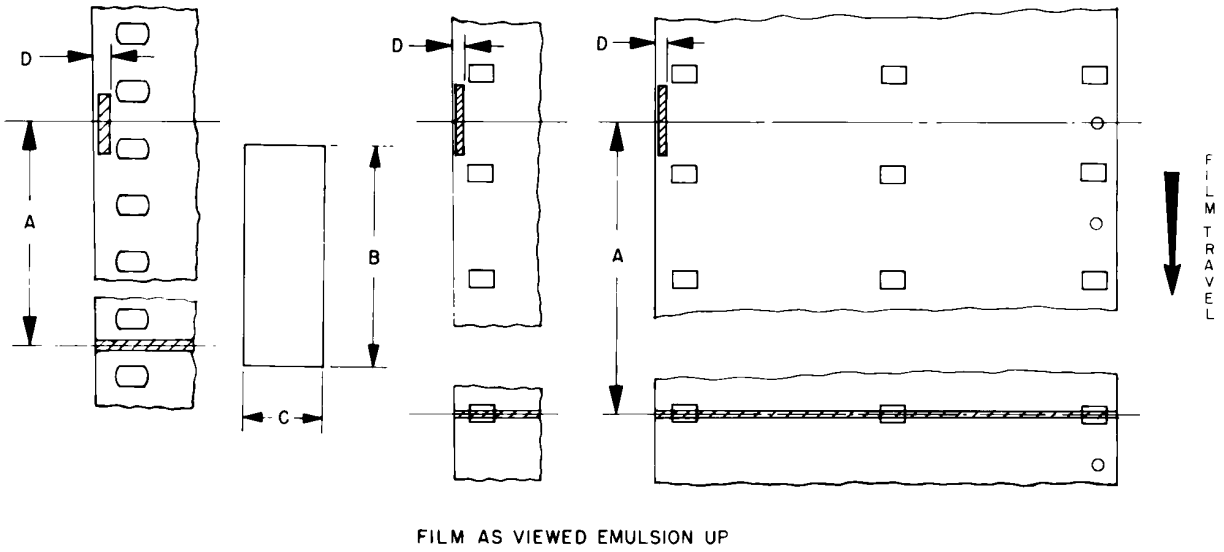

Figure 2 – Cueing spot for 35-mm, 16-mm and 35-mm perforated 16-mm 3R film

Table 2 – Specifications

	Dimensions	Inches	Millimeters
A	35 mm (8 frames) (see note)	5.97 ± 0.01	151.6 ± 0.3
A	16 mm (20.5 frames) (see note)	6.14 ± 0.01	156.0 ± 0.3
B		0.187 + 0.000 – 0.005	4.75 + 0.00 – 0.13
C		0.062 ± 0.005	1.57 ± 0.13
D	35 mm	0.075 ref	1.90 ref
D	16 mm	0.080 + 0.000 – 0.005	2.03 + 0.00 – 0.13
NOTE – Separation between cue spot and scene change.			

4.1.2 The scene notch centerline shall be centered on the 20th perforation after the scene change (5.99 in [152.1 mm]) with respect to the direction of film travel through the printer.

4.1.3 For forward and backward printing, a second notch placed in accordance with figure 1 may be added to the opposite edge of the film, and (observing the change in the direction of travel) the centerline distance between the two notches shall be two times dimension A in table 1.

4.2 Scene-change cueing spot

4.2.1 The dimensions and location of the cueing spot shall be as specified in figure 2 and table 2. (See annex A.3 for alternate method of forward and reverse printing.)

4.2.2 The cueing spot shall be placed 20.5 frames (6.14 in [156.0 mm]) after the scene change with respect to the direction of film travel through the printer.

4.2.3 The cueing spot shall be placed on the emulsion side of the film.

4.2.4 The cueing spot shall consist of an adhesive-backed metallic foil (preferably rounded at all four corners).

5 16-mm perforated 8-mm type S 2R (1-3) motion-picture film

5.1 Scene-change cueing spot

5.1.1 The dimensions and location of the cueing spot shall be as specified in figure 3 and table 3. (See annex A.3 for alternate method of forward and reverse printing.)

5.1.2 The cueing spot shall be centered on the 36th frameline (5.99 in [152.1 mm]) after the scene change with respect to the direction of film travel through the printer.

5.1.3 The cueing spot shall be placed on the emulsion side of the film.

5.1.4 The cueing spot shall consist of an adhesive-backed metallic foil (preferably rounded at all four corners).

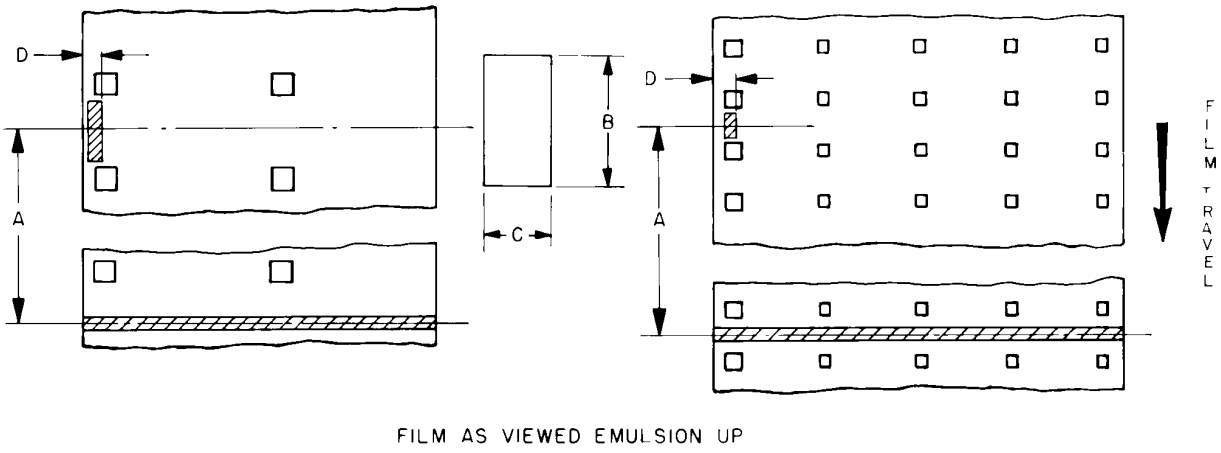

Figure 3 – Cueing spot for 16-mm perforated 8-mm type S 2R and 35-mm perforated 8-mm type S 5R film

Table 3 – Specifications

	Dimensions	Inches		Millimeters	
A	(36 frames) (see note)	5.99	nom	152.1	nom
B		0.100	± 0.005	2.54	± 0.13
C		0.050	+ 0.000 – 0.005	1.27	+ 0.00 – 0.13
D	16 mm perforated S8	0.053	± 0.002	1.35	± 0.05
D	35 mm perforated S8	0.100	± 0.005	2.54	± 0.13
NOTE – Separation between cue spot and scene change.					

6 35-mm perforated 8-mm type S 5R (1-3-5-7-0) motion-picture film

6.1 Scene-change cueing spot

6.1.1 The dimensions and location of the cueing spot shall be as specified in figure 3 and table 3. (See annex A.3 for alternate method of forward and reverse printing.)

6.1.2 The cueing spot shall be centered on the 36th frameline (5.99 in [152.1 mm]) after the scene change with respect to the direction of film travel through the printer.

6.1.3 The cueing spot shall be placed on the emulsion side of the film.

6.1.4 The cueing spot shall consist of an adhesive-backed metallic foil (preferably rounded at all four corners).

Annex A (informative)
Cueing methods

A.1 Frame-count cueing method

A frame-count cueing device provides cue signals for automatic light changes, fades, and dissolves at the appropriate frame without notching or placing cueing spots on the negatives. A preprogrammed memory device releases cue pulses at the correct frame location during the printing process. The scene length record may be in feet and frames or frames only as measured either from the start of the film to each successive cue (milestone methods) or from the preceding light change to the next scene (batch method).

A.2 Alternate method of notch cueing

For forward and reverse printing, the same notch can be used. A second notch detector may be incorporated on the printer at any desirable distance from the printing aperture normally placed on the opposite side of the printing aperture in the direction of reverse film travel. Time-delay memory devices are necessary to accommodate the travel time of the film so that the scene change takes place at the proper frameline position.

A.3 Alternate method of spot cueing

For forward and reverse printing, the same cueing spot can be used. A second cueing spot detector may be incorporated on the printer at any desirable distance from the printing aperture normally placed on the opposite side of the printing aperture in the direction of reverse film travel. Time-delay memory devices are necessary to accommodate the travel time of the film so that the scene change takes place at the proper frameline position.