
PROPOSED SMPTE STANDARD

SMPTE 420M

for Motion-Picture Film 70-mm — Projectable Image Area, 8/70 Format

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1 Scope

This standard specifies the maximum dimensions of the film image area intended for projection from an 8/70 special-venue motion-picture film, and the placement of this area relative to the perforations and the reference edge of the film.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

SMPTE 119-2004, Motion-Picture Film (70-mm) — Perforated 65-mm, KS-1870

SMPTE 418M, Motion-Picture Film (65-mm) — Camera Aperture Image and Usage, 8/70 Format

3 Dimensions

The dimensions shall be as given in figure 1 and table 1.

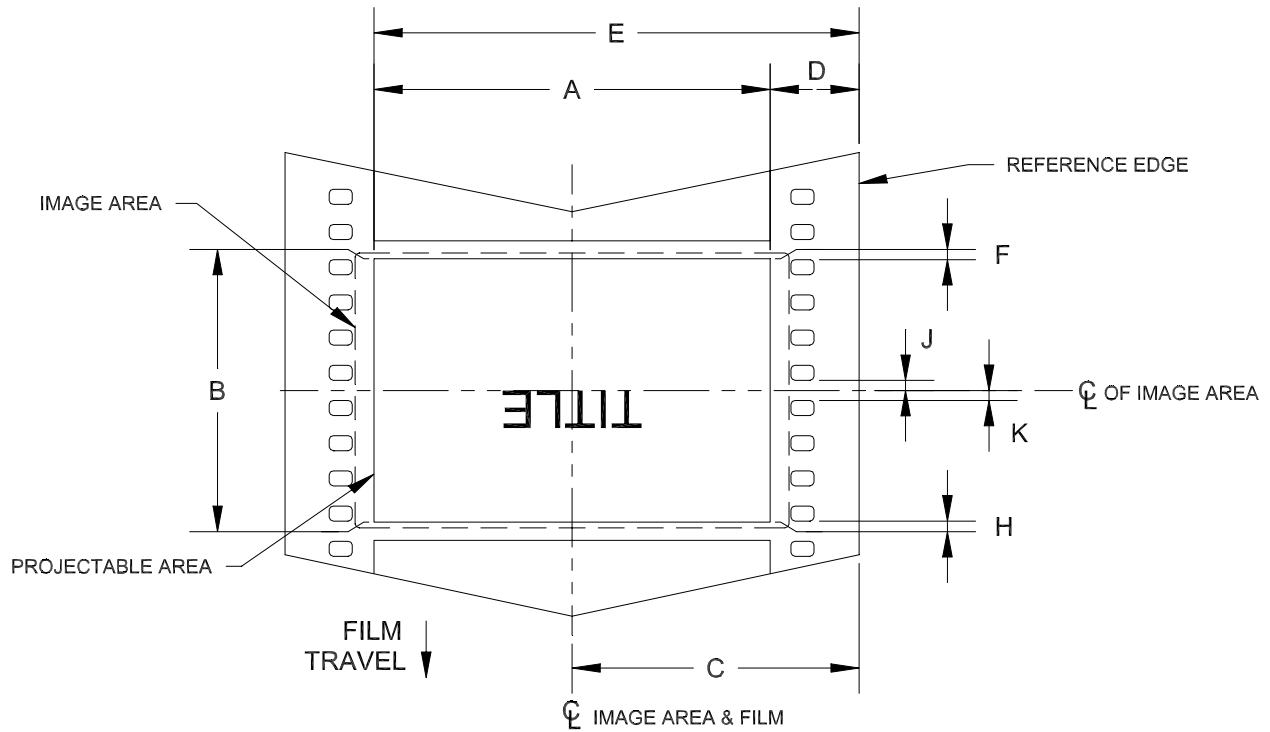


Figure 1 – Projectable area of film
 (Looking toward lens, facing emulsion side)

Table 1 – Specifications

Dimensions	Description	Inches	Millimeters
A	Projectable width	1.912 max	48.56 max
B	Projectable height	1.417 max	36.00 max
C	Reference edge to image centerline	1.377 ref	34.98 ref
D	Reference edge to image	0.420 min	10.67 min
E	Reference edge to image	2.334 max	59.28 max
F=H	Projection edge centered to perforations	within 0.008	within 0.20
J=K	Projection centerline to perforations	nominally equal	nominally equal

NOTES

- 1 Aspect ratio. The nominal projected aspect ratio of this film system is 1.35:1. However it should be understood that material cross-printed to this format from a different-format source may result in non-standard frame boundaries.
- 2 Camera vs. projector aperture. The actual image on the film is significantly larger than the maximum area intended for projection, such that no portion of the image will be cropped prior to the projector aperture.

3 Projector aperture vs. projectable area. Dimensions A, B, D, and E define the maximum area on the film that is available for projection. They do not define the opening in the aperture plate of a projector. The size of this opening may differ from dimensions A and B, for example, because of the physical separation necessary between the aperture plate and the film to avoid scratching the film, the slant of the marginal rays accepted by the projection lens, etc.

4 Projected area distortions. It is recognized that, in many cases, the actual film image area that is projected may be smaller than the projectable maximum and, in some cases, may be nonrectangular (for example, an irregular four-sided figure bound by either straight or curved lines). Such departures may result from equipment considerations, such as slight inconsistencies among lenses, screen sizes, etc.; from geometric limitations such as the screen surface being at an angle other than 90° from the projection axis, or being nonplanar, or both; from aesthetic considerations such as pictorial composition within more restrictive image limits; and finally, architectural limitations of the venue itself. It is intended that the actual projected film image area be the largest appropriately-shaped figure that can be inscribed within the specified dimensions.

5 Perforation. Film intended for projection in this format shall be perforated as specified in SMPTE 119.