SMPTE 152-2003
Revision of
ANSI/SMPTE 152-1994

SMPTE STANDARD

for Motion-Picture Film (70-mm) — Projectable Image Area

1 Scope

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

2 Dimensions

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

3 Relationship to other standards

This standard may be used as the basis for establishing picture areas from original photography for final viewing because it presents a description of the picture area on the projection print that is usable for the indicated purposes of the print (which is of primary importance because the projection print is the most commonly interchanged item). (See annex A.2.)

NOTES

1 Camera and printer apertures. The actual image on the film is significantly larger than the maximum area intended for projection, so that in placement of the images throughout the sequence of films the tolerance is not restrictive of commercial practice. Upper limits have been established through consideration of good practice in avoiding frame overlap, encroachment upon areas reserved for audio records, flare from perforation edges, etc. Lower limits are similarly related to the avoidance of image effects at a defined edge, tolerances in film positioning, etc.

2 Projector aperture. Dimensions B, D, and E define the maximum image 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.

3 Actual projected area. 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 90o from the projection axis, or being nonplanar, or both; and from aesthetic considerations such as pictorial composition within more restrictive image limits. In the absence of specific instructions to the contrary, it is intended that the actual projected film image area be the largest appropriately-shaped figure that can be inscribed within the specified dimensions.

4 Film perforations. Film intended for projection with this image is normally perforated as specified in SMPTE 119.

Approved
October 20, 2003

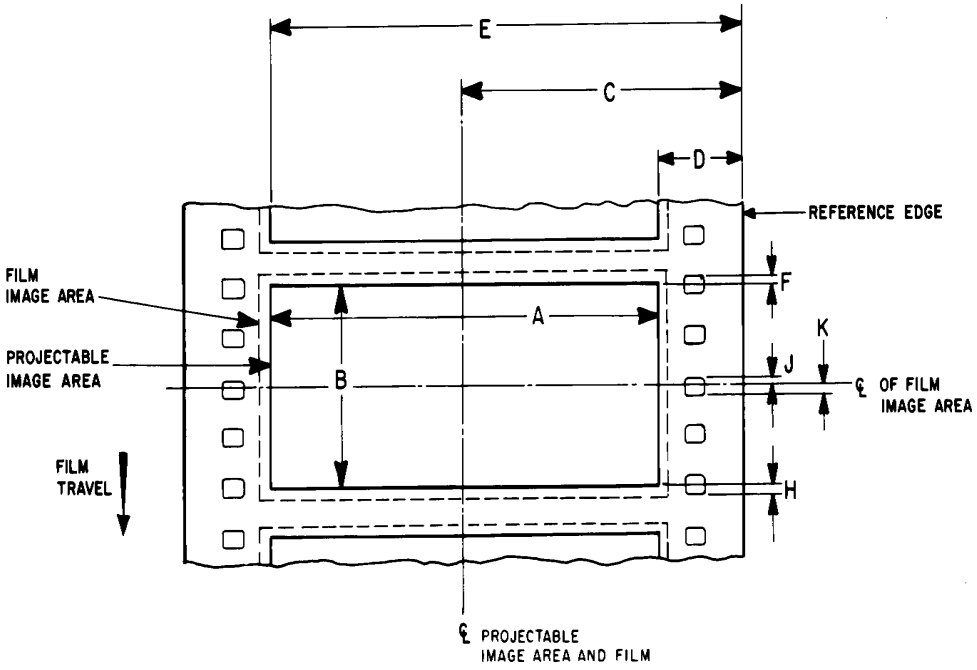

Figure 1 – Projectable area on film as seen looking through the film toward the lens

Table 1 – Specifications

Dimensions	Inches	Millimeters
A	1.912 nom	48.56 nom
B	0.870 max	22.10 max
C	1.377 ref	34.98 ref
D	0.420 min	10.67 min
E	2.334 max	59.28 max
F = H	within 0.008	within 0.20
J = K	nominally equal	nominally equal

Annex A (informative)
Additional data

A.1 Centerlines

The centerlines of the image are given for convenience in interpreting the standard, facilitating such applications as the optical design of equipment, and assisting in the understanding of suitable mechanical embodiments related to projectable image area.

A.2 Projectable image area

Essentially, the entire image within the maximum established by this standard will be transferred in such operations as reduction printing and other indirect uses of the picture information. Since the entire area will be presented, it is important that the projectable area include only material that meets recognized standards for technical and artistic excellence.

Annex B (informative)
Bibliography

SMPTE 119-1999, Motion-Picture Film (70-mm) — Perforated 65-mm, KS-1870