

# for Television — 35- and 16-mm Motion-Picture Film — Scanned Image Area



## 1 Scope

This standard specifies the size and location of that portion of 35- and 16-mm motion-picture film to be captured by a scanning device for 4:3 and 16:9 aspect ratio.

## 2 Normative references

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

ANSI/SMPTE 201M-1996 (R2003), Motion-Picture Film (16-mm) — Type W Camera Aperture Image

SMPTE 7-2004, Motion-Picture Film (16-mm) — Camera Aperture Image and Usage

SMPTE 59-1998 (R2003), Motion-Picture Film (35-mm) — Camera Aperture Images and Usage

## 3 Television reproduction

### 3.1 Film prepared for television

Film prepared by conventional photographic techniques for television reproduction shall be in accordance with SMPTE 7, SMPTE 59, and ANSI/SMPTE 201M, which specify the location and size of the 16- and 35-mm camera exposed images.

### 3.2 Dimensions for television reproduction

The telecine shall scan the areas given in tables 1 through 4. In the case of television display formats given as letterbox or sidebar, the center of the television scanned area (television production aperture), safe action area, and safe title area shall coincide with the centers given in the appropriate camera aperture documents.

In the case of television display formats given as full screen, the centers of the television scanned, safe action, and safe title areas may be jointly moved (panned) into the cropped area. Such movement shall not cause the scanned area (television production aperture) to move outside the extremes of the corresponding dimension given in the letterbox or sidebar display format for that film format.

**Table 1 – 35-mm for 4:3 television**  
**(for 4:3 nominal aspect ratio television reproduction of 35-mm motion-picture film)**

<b>Type 'A' Apertures (Academy) - Image Center 18.75mm</b>								
Composed Aspect Ratio (See Note 5)	TV Display Mode	Intended TV Aspect Ratio	Image as mapped into 4:3	Scanned Area (mm)		Scanned Area (in.)		Notes
				Width	Height	Width	Height	
1.37	Full Screen	1.33		20.12	15.09	0.792	0.594	3
1.66	Full Screen	1.33		16.83	12.62	0.663	0.497	3
1.66	Letterbox	1.66		20.95	12.62	0.825	0.497	1,2
1.78	Full Screen	1.33		15.71	11.78	0.619	0.464	3
1.78	Letterbox	1.78		20.95	11.78	0.825	0.464	1,2
1.85	Full Screen	1.33		15.09	11.32	0.594	0.446	3
1.85	Letterbox	1.85		20.95	11.32	0.825	0.446	1,2



Cropped Area of the Film Image not displayed



Black area on the television display



Image Area on the Television display

<b>Type 'B' Apertures (Academy) - Image Center 18.75mm</b>								
Composed Aspect Ratio (See Note 5)	TV Display Mode	Intended TV Aspect Ratio	Image as mapped into 4:3	Scanned Area (mm)		Scanned Area (in.)		Notes
				Width	Height	Width	Height	
2.39	Full Screen	1.33		11.69	17.53	0.460	0.690	3,4
2.39	Letterbox	2.39		20.95	17.53	0.825	0.690	1,2,4



Cropped Area of the Film Image not displayed


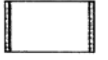

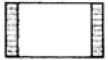







Black area on the television display



Image Area on the Television display

**Table 1 (continued) – 35-mm for 4:3 television**  
**(for 4:3 nominal aspect ratio television reproduction of 35-mm motion-picture film)**

<b>Type 'C' Apertures (Full) - Image Center 17.48mm</b>								
Composed Aspect Ratio (See Note 5)	TV Display Mode	Intended TV Aspect Ratio	Image as mapped into 4:3	Scanned Area (mm)		Scanned Area (in.)		Notes
				Width	Height	Width	Height	
1.33	Full Screen	1.33		24.00	18.00	0.945	0.709	
1.66	Full Screen	1.33		19.28	14.46	0.759	0.569	3
1.66	Letterbox	1.66		24.00	14.46	0.945	0.569	1,2
1.78	Full Screen	1.33		18.00	13.50	0.709	0.531	3
1.78	Letterbox	1.78		24.00	13.50	0.945	0.531	1,2
1.85	Full Screen	1.33		17.29	12.97	0.680	0.511	3
1.85	Letterbox	1.85		24.00	12.97	0.945	0.511	1,2
2.39	Full Screen	1.33		13.39	10.04	0.527	0.395	3
2.39	Letterbox	2.39		24.00	10.04	0.945	0.395	1,2





Cropped Area of the Film Image not displayed

Black area on the television display



Image Area on the Television display

<b>Type 'D' Apertures (3 Perf.) – Image Center 17.48mm</b>								
Composed Aspect Ratio (See Note 5)	TV Display Mode	Intended TV Aspect Ratio	Image as mapped into 4:3	Scanned Area (mm)		Scanned Area (in.)		Notes
				Width	Height	Width	Height	
1.78	Full Screen	1.33		17.29	12.97	0.680	0.511	3,6
1.78	Letterbox	1.78		23.06	12.97	0.910	0.511	1,2,6




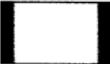
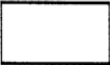

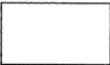
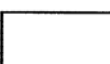
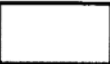
Cropped Area of the Film Image not displayed

Black area on the television display



Image Area on the Television display

**Table 2 – 35-mm for 16:9 television**  
**(for 16:9 nominal aspect ratio television reproduction of 35-mm motion-picture film)**

<b>Type 'A' Apertures (Academy) - Image Center 18.75mm</b>								
Composed Aspect Ratio (See Note 5)	TV Display Mode	Intended TV Aspect Ratio	Image as mapped into 16:9	Scanned Area (mm)		Scanned Area (in.)		Notes
				Width	Height	Width	Height	
1.37	Sidebar	1.33		20.12	15.09	0.792	0.594	1,3
1.37	Sidebar	1.37		20.95	15.29	0.825	0.602	1,3
1.66	Full Screen	1.78		20.95	11.78	0.825	0.464	2
1.66	Sidebar	1.66		20.95	12.62	0.825	0.497	1,3
1.78	Full Screen	1.78		20.95	11.78	0.825	0.464	
1.85	Full Screen	1.78		20.12	11.32	0.792	0.446	3
1.85	Letterbox	1.85		20.95	11.32	0.825	0.446	1,2





Cropped Area of the  
Film Image not displayed



Black area on  
the television display



Image Area on the  
Television display

<b>Type 'B' Apertures (Academy) - Image Center 18.75mm</b>								
Composed Aspect Ratio (See Note 5)	TV Display Mode	Intended TV Aspect Ratio	Image as mapped into 16:9	Scanned Area (mm)		Scanned Area (in.)		Notes
				Width	Height	Width	Height	
2.39	Full Screen	1.78		15.58	17.53	0.613	0.690	3,4
2.39	Letterbox	2.39		20.95	17.53	0.825	0.690	1,2,4



Cropped Area of the  
Film Image not displayed

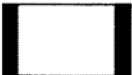
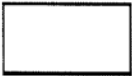
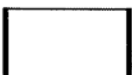
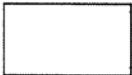

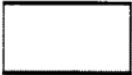
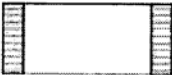

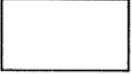


Black area on  
the television display



Image Area on the  
Television display

Table 2 (continued) – 35-mm for 16:9 television  
(for 16:9 nominal aspect ratio television reproduction of 35-mm motion-picture film)

Type 'C' Apertures (Full) - Image Center 17.48mm								
Composed Aspect Ratio (See Note 5)	TV Display Mode	Intended TV Aspect Ratio	Image as mapped into 16:9	Scanned Area (mm)		Scanned Area (in.)		Notes
				Width	Height	Width	Height	
1.33	Sidebar	1.33		24.00	18.00	0.945	0.709	1,3
1.66	Full Screen	1.78		24.00	13.50	0.945	0.531	2
1.66	Sidebar	1.66		24.00	14.46	0.945	0.569	1,3
1.78	Full Screen	1.78		24.00	13.50	0.945	0.531	
1.85	Full Screen	1.78		23.06	12.97	0.908	0.511	3
1.85	Letterbox	1.85		24.00	12.97	0.945	0.511	1,2
2.39	Full Screen	1.78		17.85	10.04	0.703	0.395	3
2.39	Letterbox	2.39		24.00	10.04	0.945	0.395	1,2
Type 'D' Aperture (3 Perf.) – Image Center 17.48mm								
1.78	Full Screen	1.78		23.06	12.97	0.910	0.511	6



Cropped Area of the  
Film Image not displayed




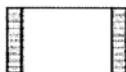



Black area on  
the television display



Image Area on the  
Television display

**Table 3 – 16-mm for 4:3 television**  
**(for 4:3 nominal aspect ratio television reproduction of 16-mm motion-picture film)**

<b>Regular Aperture 16mm - Image Center 7.98mm</b>								
Composed Aspect Ratio (See Note 5)	TV Display Mode	Intended TV Aspect Ratio	Image as mapped into 4:3	Scanned Area (mm)		Scanned Area (in.)		Notes
				Width	Height	Width	Height	
1.33	Full Screen	1.33		9.35	7.01	0.368	0.276	
<b>Super 16 (Type W) - Image Center 9.00mm</b>								
1.66	Full Screen	1.33		9.80	7.35	0.386	0.289	3
1.66	Letterbox	1.66		12.20	7.35	0.480	0.289	1,2
1.78	Full Screen	1.33		9.15	6.86	0.360	0.270	3
1.78	Letterbox	1.78		12.20	6.86	0.480	0.270	1,2



Cropped Area of the  
Film Image not displayed

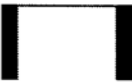

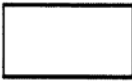



Black area on  
the television display



Image Area on the  
Television display

**Table 4 – 16-mm for 16:9 television**  
 (for 16:9 nominal aspect ratio television reproduction of 16-mm motion-picture film [width, height])

<b>Regular Aperture 16mm - Image Center 7.98mm</b>								
Composed Aspect Ratio (See Note 5)	TV Display Mode	Intended TV Aspect Ratio	Image as mapped into 16:9	Scanned Area (mm)		Scanned Area (in.)		Notes
				Width	Height	Width	Height	
1.33	Sidebar	1.33		9.35	7.01	0.368	0.276	3
<b>Super 16 (Type W) - Image Center 9.00mm</b>								
1.66	Sidebar	1.66		12.20	7.35	0.480	0.289	3
1.66	Full Screen	1.78		12.20	6.86	0.480	0.270	1,2
1.78	Full Screen	1.78		12.20	6.86	0.480	0.270	



Cropped Area of the  
Film Image not displayed



Black area on  
the television display



Image Area on the  
Television display

Notes to tables 1 through 4

1 Letterbox and sidebar scanned areas will not fill the entire television scanned area (television production aperture); the balance of the television picture outside the scanned area shall be filled with a suitable matting image.

2 Film image shall be adjusted so that the scanned width fills the television image width.

3 Film image shall be adjusted so that the scanned height fills the television image height.

4 Film image is anamorphic. The display image is deanamorphic (unsqueezed).

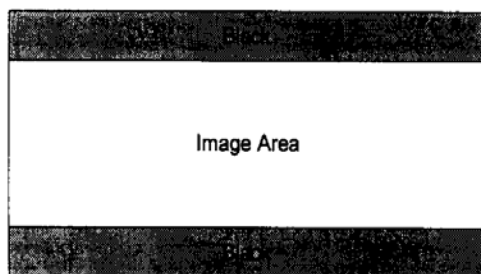
5 Composed aspect ratio is the aspect ratio for which the image was originally composed and at which it was originally intended to be displayed. All dimension calculations were done to at least four decimal places, but aspect ratios are nominally indicated.

6 Scanned area shown differs from the corresponding area in type C (4 perf) apertures to allow room for mechanical splices in 3-perf film.

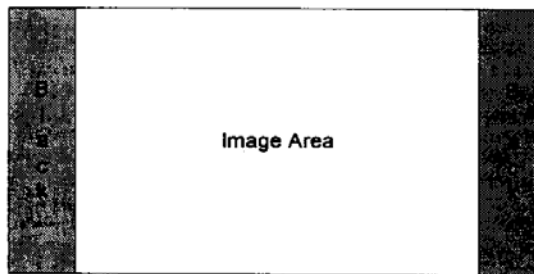
## 4 Definitions

**4.1 letterbox:** An image mapped into the total display area such that the full width of the display area is utilized, but the height is not (see figure 1).

**4.2 sidebar:** An image mapped into the total display area such that the full height of the display area is utilized, but the full width is not (see figure 2).



**Figure 1 – Letterbox**



**Figure 2 – Sidebar image mapping**

### **Annex A** (informative)

#### **Production and clean apertures**

A marking on the reticle of the film camera viewfinder may be used to indicate the production aperture (scanned image area).

Since the great majority of television receivers display less than the clean aperture, it may be desirable to indicate smaller areas in the film camera viewfinder within which essential information should be photographed (refer to SMPTE RP 187 for a description of production and clean apertures).

### **Annex B** (informative)

#### **Bibliography**

SMPTE 195-2000, Motion-Picture Film (35-mm) — Motion-Picture Prints — Projectable Image Area

SMPTE 233-2003, Motion-Picture Film (16-mm) — Projectable Image Area and Projector Usage

SMPTE RP 187-1995, Center, Aspect Ratio and Blanking of Video Images

SMPTE EG 25-2003, Telecine Scanning for Film Transfer to Television

ISO 1223:2003, Cinematography — Picture Areas for Motion-Picture Films for Television — Position and Dimensions

ISO 2906:2002, Cinematography — Image Area Produced by Camera Aperture on 35 mm Motion-Picture Film — Position and Dimensions

ISO 2907:2002, Cinematography — Maximum Projectable Image Area on 35 mm Motion-Picture Film — Position and Dimensions

ISO 5768:1998, Cinematography — Image Produced by Camera Aperture Type W on 16-mm Motion-Picture Film — Position and Dimensions