

EBU Technical Recommendation R102-1999

Film camera viewfinders for television



<i>EBU Committee</i>	<i>First Issued</i>	<i>Revised</i>	<i>Re-issued</i>
PMC	1999		

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The EBU has considered that:

- The dimensions of scanned areas from motion picture film for 4:3 and 16:9 television systems have recently become an agreed world wide standard [1][2][3],
- The existing ground glasses used in many film camera viewfinders do not show these newly standardised scanned area,
- images composed for television may be presented on two different television screen-formats,
- the full image height of wide screen films will be shown in letterbox presentation on television, because the effects of vertical overscan in the receiver will be outside the image.

The EBU recommends that:

- when shooting film for television, Members use ground glasses in film cameras that show the camera aperture and the maximum safe scanned area for the film format, according to the dimensions outlined in Appendix 1.

Bibliography

- [1] EBU Technical Recommendation R86-1996: **Scanned image area dimensions on film for television**
 - [2] ITU Recommendation BR 1374 **Scanned area dimensions from 16 mm and 35 mm cinematographic film used in television**
 - [3] SMPTE 96M-1999: **35- and 16-mm Motion Picture Film – Scanned Image Area**
 - [4] ISO 466:1976: **Cinematography -- Image produced by 16 mm motion-picture camera aperture -- Position and dimensions**
 - [5] ISO 2906:1984 **Cinematography -- Image area produced by camera aperture on 35 mm motion-picture film -- Position and dimensions**
 - [6] ISO 5768-1998: **Cinematography – Image produced by aperture type W on 16 mm motion picture film**
 - [7] EBU Technical Recommendation R95-1999: **16:9 Widescreen Television Production: Safe Areas**
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Appendix 1

Scanned image areas to be shown as viewfinder marking for television

Cameras apertures

Camera apertures are specified in various Intentional Standards. [4, 5, 6]

Scanned areas for television

In the past there have been a number of different standards and recommendations for the image areas that are scanned from film for use in television. For the introduction of 16:9 aspect ratio television, a single harmonised image area standard has been agreed for scanning each type of film for television. These maximum safe area dimensions have been agreed following one of two basic principles, depending on whether the film was specially shot for television or not. On films specially shot and framed for television, the scanned area is the largest safe area inside the camera aperture: see Table 1. For other films, it corresponds to the intended projected image (these films are not covered by the present Recommendation). These dimensions can be found in EBU Recommendation R86 [1]. The same areas are given in ITU-R BR.1354 [2] and SMPTE 96M-1999 [3]

The recently agreed scanned area dimensions have become the reference values to be used for the markings on ground-glass used in film-cameras for television.

In a transition period from 4:3 to 16:9 television screen format, viewfinder-markings must reflect accurately the multiple exploitation of television images as well as the cinema presentation.

Table 1

Maximum area dimensions scanned from 16 and 35 mm motion picture films shot and framed for television (From EBU R86)

Scanned for 4:3 television, full screen	width	height	centre
Super-16 mm	9.15 mm	6.86 mm	9.00 mm
Super 35 mm, 4 perforations.	24.00 mm	18.00 mm	17.48 mm
Super-35 mm, 3 perforations	18.00 mm	12.50 mm	17.48 mm

Scanned for 16:9 television full screen	width	height	centre
Super-16 mm	12.20 mm	6.86 mm	9.00 mm
35 mm academy	20.95 mm	11.78 mm	18.75 mm
Super-35 mm 4 perf	24.00 mm	13.50 mm	17.48 mm
Super-35 mm 3 perf	24.00 mm	13.50 mm	17.48 mm

Design of ground glass markings

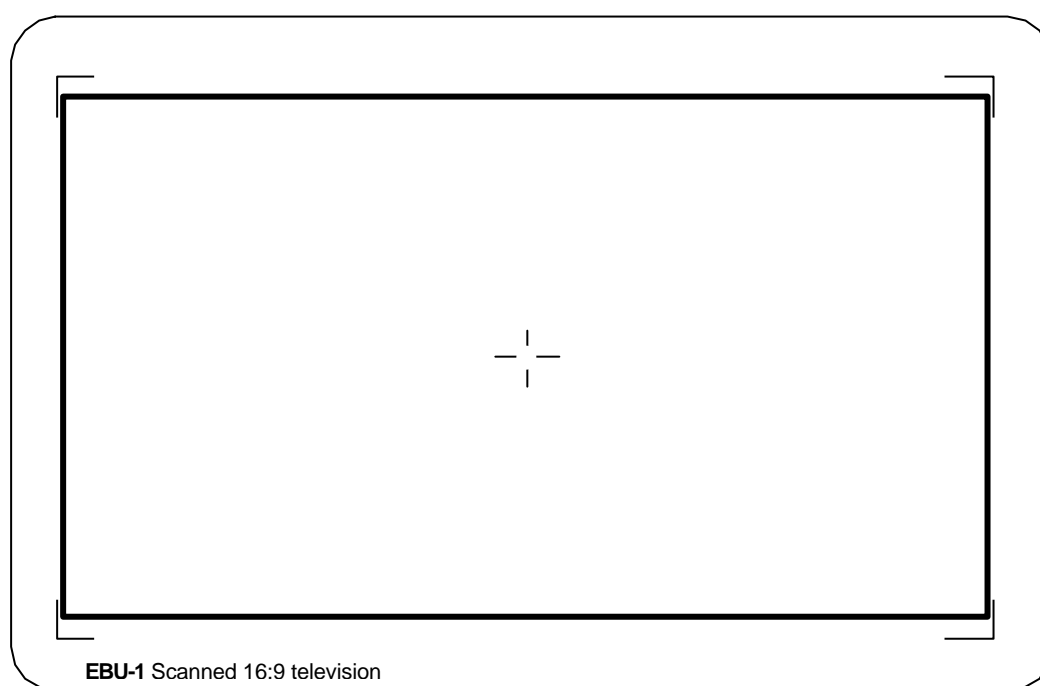
Basic markings

All ground glasses used in film cameras for television should show the camera aperture of the film format and the maximum safe scanned area for the chosen television system.

An example of the possible markings on a ground glass is given in figure 1. This ground glass is intended for shooting film expected to scanning for 16:9 television.

Figure 1

A ground glass for Super16 film camera, marked for framing for 16:9 television



Camera aperture 1.66:1 = Solid corners (12.35 mm x 7.42 mm) ISO 5768 [4]

Scanned image area 16:9 = Solid frame (12.20 mm x 6.86 mm) EBU R86 [1]

Additional markings

The detailed design of a ground glass for a film camera viewfinder will depend on the preferences of the user. Depending on how the exposed image is to be exploited for different presentation formats on television and the different practices and preferences on protected areas, different image areas will need to be marked. In marking protected image areas for television, the users should take into account the required protection area and the effects of image cropping in receivers. Safe areas for 16:9 television are given in EBU Recommendation R95 [7].
