RECOMMENDATION ITU-R BR.1288

SCANNED AREA OF 16 mm AND 35 mm RELEASE FILM USED FOR 4:3 CONVENTIONAL TELEVISION SYSTEMS

(Question ITU-R 240/11)

(1997)

The ITU Radiocommunication Assembly,

considering

a) that it is normal practice in broadcasting organizations to transfer TV programmes released on film to video tape for transmission or distribution to other organizations;

b) that more and more often, films are transferred to tape by external post-production or facilities houses;

c) that there is a need for broadcasters to have recommendations on operational practices when scanning films for transmission or transfer to video carrier;

d) that the broadcasting organizations would like to specify exactly the picture area on film that they received on video carrier by other organizations;

e) that many frame formats exist for 35 mm, 16 mm and Super 16 mm motion picture films, as listed below, and preferred dimensions for the area used on the frame of all those formats should be recommended:

– 1.37:1 (“Academy” format, close to 4:3),

– 1.66:1 (European widescreen format, close to 16:9),

– 1.85:1 (United States widescreen format, close to 16:9),

– 2.35:1 (anamorphic “Cinemascope” format);

f) that the scanned area dimensions should be related to the recommended maximum projectable image area dimensions being specified in:

– International Organization for Standardization (ISO) Standard 2907-1994 “Maximum projectable image area on 35 mm motion picture film – Position and dimensions”;

– ISO Standard 359-1993 “Projectable image area on 16 mm motion-picture prints – Position and dimensions”;

– ISO Standard DIS 5768-1996 “Image produced by camera aperture Type W on 16 mm motion-picture film – Position and dimensions”;

g) that two methods are currently used in the world to scan widescreen film programmes in conventional television:

– the letter-box method, in which the width of the film frame fills the width of the television image, leaving black bars at the top and bottom of the television image if the film aspect ratio is wider than the television aspect ratio; this method is used when it is desired to preserve the original image composition of the film;

– the pan-scan method in which the height of the film image fills the height of the television image, and the area scanned on the film frame is made to travel as appropriate over the width of the frame if this is wider; this method is used when it is desired that programme material should fill the television screen,

recommends

1 that a number of preset areas to be scanned on 35 mm**,** 16 mm and Super 16 mm release print films should be selectable at choice; Tables 1 and 2 propose the dimensions of the areas used on the various film formats with 4:3 “full screen” and with 4:3 “letter-box” methods, respectively; in the latter case the used areas should be centred on the film projectable area.

TABLE 1

4:3 “Full screen” display

Picture aspect ratio		Used frame area dimensions (mm)	Notes
Film	Displayed on TV		
35 mm		(Centre 18.75)(1)	
1.37:1	1.33:1	20.12 × 15.10	1
1.66:1	1.33:1	16.83 × 12.62	2
1.85:1	1.33:1	16.83 × 11.33	2
2.35:1	1.33:1	12.14 × 18.21	3
Standard 16 mm		(Centre 7.98)(1)	
1.37:1	1.33:1	9.35 × 7.00	1
Super 16 mm		(Centre 9.00)(1)	
1.66:1	1.33:1	9.35 × 7.00	4

(1) Distance from picture centre to guiding edge.

TABLE 2

4:3 “Letter-box” display

Picture aspect ratio		Used frame area dimensions (mm)	Notes
Film	Displayed on TV		
35 mm		(Centre 18.75)(1)	
1.66:1	1.66:1	20.12 × 12.62	5
1.66:1	1.78:1	20.12 × 11.33	6
1.85:1	1.78:1	20.12 × 11.33	5
2.35:1	1.85:1	16.85 × 18.21	7
2.35:1	2.35:1	21.29 × 18.21	8
Super 16 mm		(Centre 9.00)(1)	
1.66:1	1.66:1	11.86 × 7.26	9
1.66:1	1.78:1	11.86 x 6.67	6

(1) Distance from picture centre to guiding edge.

Notes to Tables 1 and 2:

NOTE 1 – According to ISO Standard 1223; in this case the area practically covers the film frame.

NOTE 2 – The same scanned width is specified for release prints in both 1.66 and 1.85 aspect ratio for reasons of operational convenience. In both cases about 80% of the film frame width will be displayed, the remaining 20% being covered by pan-scanning; in the case of prints in the 1.85 aspect ratio there will be two black bars at the top and bottom of the image, each of them 5% of image height; these black bars will be concealed by the normal overscan of television sets.

NOTE 3 – This area is used for anamorphic Cinemascope films; about 57% of the frame width will be displayed, the remaining 43% being covered by pan-scanning.

NOTE 4 – About 78% of the film frame width will be displayed, the remaining 22% being covered by pan-scanning.

NOTE 5 – The same scanned width is specified for films in both 1.66 and 1.85 aspect ratios for reasons of operational convenience; it will cause two black bars to appear at the top and bottom of the display; for a film in the 1.66 aspect ratio, each bar being 8% of picture height; for a film in the 1.85 aspect ratio, each bar being about 12% of picture height.

NOTE 6 – This area has an aspect ratio of 16:9 and a width which nearly fully exploits the maximum projectable image width; it will cause a cropping of about 4% at the top and bottom of the film frame. It will cause two black bars to appear at the top and bottom of the display each bar being 12.5% of picture height.

NOTE 7 – This area is used for anamorphic Cinemascope films; it represents a compromise between the pan-scan and the letter-box methods; it displays 79% of the film frame width and causes two black bars to appear at the top and bottom of the displayed image, each bar being 14% of image height.

NOTE 8 – In this case two black bars will appear at the top and bottom of the display, each bar being 21% of picture height.

NOTE 9 – It will cause two black bars to appear at the top and bottom of the display, each bar being 9% of pict ure height.