RECOMMENDATION ITU-R BR.1530

Guide to Recommendations on the use of film in television

(Question ITU-R 240/11)

(2001)

The ITU Radiocommunication Assembly,

considering

a) that programmes on film are often used in television operation;

b) that the television use of programmes on film benefits from the application of appropriate technical approaches;

c) that such approaches concern various aspects of the generation, archival and broadcasting of programmes on film, such as:

– the framing and characteristics of images on the film;

– the characteristics of film soundtracks and their allocation to the various audio components;

– the identification of the content and of the sequence of film reels;

– the leaders and trailers for such film reels (sound and image);

– the methods for quality evaluation of programmes on film;

– the conditions for medium and long term storage of film programmes in broadcasters' archives, required to achieve adequate preservation of their programme content;

– the transfer to video tape of archived films that may be reaching the end of their archive life;

– the image areas to be scanned by telecine on programme films according to their broadcast use;

– the presentation of film programmes in the various image formats currently used in television broadcasting;

– the audio treatment for films with stereo, multitrack, matrixed and companded sound;

d) that the ITU-R has issued several Recommendations on the television use of programmes on film,

recommends

1 that, when broadcasting programmes that are available on film, broadcasters should base their operation on the Recommendations detailed in Annex 1, in order to achieve uniformly optimal results.

ANNEX 1

Guide to ITU-R Recommendations on the use of film in television

This Annex is intended to be a user's guide on the application of all the ITU-R Recommendations in the BR Series, on the use of film in television.

It indicates which Recommendations should be applied to solve specific operational problems that broadcasters could meet when producing, archiving and broadcasting programmes available in the form of films.

It should be noted that ITU-R Recommendations are constantly updated to reflect new technologies as well as new approaches or requirements. This Annex makes reference to ITU-R Recommendations by only giving their basic number, to indicate that the reference applies to the most recent version of each Recommendation.

The list below is an index of the Recommendations of the ITU-R related to technical specifications and operational methods applicable to the television use of programmes on film:

Recommendation ITU-R	Title
BR.265	Standards for the international exchange of programmes on film for television use
BR.1219	Handling and storage of cinematographic film recording
BR.1287	Broadcasting of programmes on film with multichannel sound
BR.1355	Viewing condition for telecine transfer of film images on a television display
BR.1374	Scanned area dimensions from 16 mm and 35 mm cinematographic film used in television
BR.1422	Operational practices for television use of film soundtracks encoded with noise reduction and matrix surround
BR.1441	Compromise scanned area dimensions for television from 35 mm wide-screen films

Basic operating practices for international exchange of film programmes*

Basic technical specifications and operating practices to be applied to the international exchange of programmes on film are given in Recommendation ITU-R BR.265 – Standards for the international exchange of programmes on film for television use.

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* International programme exchange is defined as the transmission of television or sound programme material (or components thereof) among professional parties in different countries. It should be based on internationally agreed and widely employed technical standards or operating practices, except by prior bilateral agreement among the parties involved.

The Recommendation specifies:

– the types of film and soundtrack recommended for international programme exchange;

– the preferred characteristics, such as the colour balance of image films;

– the dimensions standardized for the various films and for the images recorded on them;

– the leaders and trailers to be used on films for international programme exchange;

– the minimum information to be provided with exchanged film programmes;

– the standardized characteristics of optical and of magnetic soundtracks for such films;

– the allocation of such tracks to the various sound components of the film programme.

Archival of film programmes

Appropriate guidelines on the handling and storage of programmes that broadcasters archive on cinematographic film are provided in Recommendation ITU-R BR.1219 – Handling and storage of cinematographic film recording.

The guidelines are based on the consideration that:

– film programmes are often archived for a very long period of time;

– during archival storage they may be reused many times to transfer the programme from film onto tape;

– proper care when handling the film before, during and after each archival interval is a pre-requisite for the successful retrieval of the programme.

Annex 2 to the Recommendation provides a glossary of specialized terms offering a more detailed analysis concerning the subject of film handling and archival.

Exploitation of multichannel soundtracks of film programmes

The exploitation of multichannel soundtracks of film programmes is covered in Recommendations ITU-R BR.1287 and ITU-R BR.1422.

Recommendation ITU-R BR.1287 – Broadcasting of programmes on film with multichannel sound, specifies the general technical approaches to be taken in order to optimally exploit multichannel sound present on standard analogue optical soundtracks of feature films.

This Recommendation analyses three cases, namely:

– when it is desired to derive a monophonic sound signal for conventional monophonic television emission;

– when it is desired to derive a stereophonic sound signal for stereophonic television emission;

– when it is desired to carry the original stereophonic film sound with matrix encoding of surround sound through the television emission chain.

Recommendation ITU-R BR.1422 – Operational practices for television use of film soundtracks encoded with noise reduction and matrix surround, provides similar specifications but it focuses them on the exploitation of the various versions of Dolby companding and matrix encoding that can be found on analogue soundtracks of current feature films.

There is no BR Series Recommendation yet on the exploitation of the various digital systems that have been proposed to carry multichannel sound on feature films.

Assessment of the quality of film programmes intended for television presentation

Recommendation ITU-R BR.1355 – Viewing conditions for telecine transfer of film images on a television display, specifies the characteristics of viewing rooms designed for a critical assessment of the picture quality of film programmes in view of their presentation to a television audience, and the alignment of the television display in them.

The Recommendation refers the reader to the following Standards and Recommendations:

– ISO Standard 12608-1996, "Room and surround conditions for evaluating television display from telecine reproduction".

– Recommendation ITU-R BT.500 – Methodology for the assessment of the quality of television pictures.

– Recommendation ITU-R BT.814 – Specifications and alignment procedures for setting of brightness and contrast of displays.

Dimensions of the film areas scanned by the telecine

The dimensions of the areas that the telecine should scan of 16 mm or on 35 mm film when it is used in television are specified in Recommendations ITU-R BR.1374 and ITU-R BR.1441.

Recommendation ITU-R BR.1374 – Scanned area dimensions from 16 mm and 35 mm cinematographic film used in television, specifies scanned areas for:

– 16 mm film with the standard aperture;

– Super 16 mm film;

– 35 mm film with the Academy aperture, framed for the various presentation aspect ratios in use;

– Super 35 mm film with 4-perforation aperture;

– Super 35 mm film with 3-perforation aperture.

The Recommendation addresses the following cases:

– film shot and framed for optical projection, and scanned with an aspect ratio of 4:3;

– film shot and framed for optical projection, and scanned with an aspect ratio of 16:9;

– film specially shot and framed for television with an aspect ratio of 4:3;

– film specially shot and framed for television with an aspect ratio of 16:9.

The specified dimensions reflect:

– the maximum projectable image area corresponding to ISO standards for film intended for optical projection;

– the maximum safe areas to be scanned from film specially shot and framed for television.

They are based on the following principles:

– to either fill the height of the television display with the height of the film image, cropping some film image on the sides of the television display (full screen presentation);

– or to fill the width of the film with the width of the film image, leaving black areas at the top and bottom of the television display (letterbox presentation).

The information is comprehensive and it is presented by means of clear tables and figures, which also highlight the film areas that the television scan crops out, and the television screen areas that the scan does not cover because due to the letterbox presentation.

Recommendation ITU-R BR.1441 – Compromise scanned area dimensions for television from 35 mm wide-screen films, recognizes that some broadcasters prefer to adopt a compromise aspect ratio between the full-screen and the letterbox scanning areas for some wide-screen films, for artistic or for heritage reasons.

The Recommendation recommends choosing, in this case, among three compromise presentation formats, namely:

– for television displays with aspect ratio 4:3, the presentation formats of 14:9 or 16:9 or 18:9 (2:1);

– for television displays with aspect ratio 16:9, the presentation formats of 16:9 or 18:9.

The Recommendation specifies the dimensions of the area scanned on film for this operating practice. The information is again comprehensive and it is presented by means of clear tables and figures, which also highlight the film areas that the television scan crops out in these compromise cases, and the television screen areas that the scan does not cover.