

QUESTION ITU-R 135/6

System parameters for digital sound systems*

(2010)

The ITU Radiocommunication Assembly,

considering

- a) that the improvements in picture quality associated with high-definition and future television systems that are in development (e.g. 3DTV, EHRI) may warrant continued study of the sound systems that should be used in order to keep in step with the higher level of realism available in the picture;
- b) that two-channel stereophonic representation conveys substantial acoustic information by phantom sources, and cannot adequately provide for coincidence of the visual and aural images independent of viewer's location;
- c) that various transmission systems with bit-rate reduced coding for multichannel sound transmission have been developed and are still under development;
- d) that Recommendation ITU-R BS.646-1 – Source encoding for digital sound signals in broadcasting studios, specifies sampling frequency and bit resolution per sample for the digital coding of sound signals;
- e) that sound studio equipment may need coding parameters different from those required for the emission of high-quality broadcast signals, for example, they may require a larger number of bits/sample to provide processing “headroom” and higher sampling rate to provide wider frequency response;
- f) that Recommendation ITU-R BS.775-2 specifies hierarchic multichannel sound systems up to 5.1 sound system for broadcasting;
- g) that Recommendation ITU-R BS.775-2 needs to be extended, taking into account that other various multichannel sound systems, including three-dimensional sound systems, have already been developed and introduced into cinema and home audio environments,

* For any matters dealing with conversion of film sound to broadcasting sound formats refer to Recommendation ITU-R BR.1287 and Recommendation ITU-R BR.1422.



decides that the following Questions should be studied

- 1 What are the optimum arrangements for monitoring multichannel sound during production, such as:
 - loudspeakers/room responses;
 - general arrangement and labelling of loudspeakers for covering extended multichannel sound systems beyond those already specified in Recommendation ITU-R BS.775-2;
 - suitable number of channels, arrangements, and characteristics for loudspeakers handling low frequency signals;
 - suitable methods for aligning the reproduction levels of the monitor loudspeakers;
 - suitable methods for visual monitoring of multichannel sound signal parameters such as level, phase, delay, etc.?
- 2 What are the requirements for allocation of channels on channel interfaces, when multichannel operation is envisaged?
- 3 What are the optimum methods to ensure appropriate system compatibility, such as:
 - backward compatibility of higher order multichannel sound systems with lower order sound systems already specified in Recommendation ITU-R BS.775-2;
 - forward compatibility of lower order sound systems already specified in Recommendation ITU-R BS.775-2 with higher order multichannel sound systems;
 - compatibility of multichannel sound systems with other sound reproduction systems (e.g. holographic reproduction)?
- 4 What are the optimum coding parameters for representation of sound signals to ensure high sound quality for programme production?
- 5 What are the requirements for digital audio interfaces for interconnection of digital audio equipment, taking into account the need for transmitting auxiliary data along with the programme?
- 6 What are the requirements to apply to transcoding of audio signals from one format to another?
- 7 What are the requirements for file types and wrappers for use in multichannel audio production and programme exchange?
- 8 What Recommendations should be developed, and what technologies could be used to satisfy these requirements?

further decides

- 1 that the results of the above studies should be included in (a) Recommendation(s);
2 that the above studies should be completed by 2012.

Category: S2