

International Telecommunication Union

ITU-R
Radiocommunication Sector of ITU

Recommendation ITU-R BS.2019
(08/2012)

**Audio system for the production and
international exchange of
3DTV programmes for broadcasting**

BS Series
Broadcasting service (sound)

Foreword

The role of the Radiocommunication Sector is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including satellite services, and carry out studies without limit of frequency range on the basis of which Recommendations are adopted.

The regulatory and policy functions of the Radiocommunication Sector are performed by World and Regional Radiocommunication Conferences and Radiocommunication Assemblies supported by Study Groups.

Policy on Intellectual Property Right (IPR)

ITU-R policy on IPR is described in the Common Patent Policy for ITU-T/ITU-R/ISO/IEC referenced in Annex 1 of Resolution ITU-R 1. Forms to be used for the submission of patent statements and licensing declarations by patent holders are available from <http://www.itu.int/ITU-R/go/patents/en> where the Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC and the ITU-R patent information database can also be found.

Series of ITU-R Recommendations

(Also available online at <http://www.itu.int/publ/R-REC/en>)

Series	Title
BO	Satellite delivery
BR	Recording for production, archival and play-out; film for television
BS	Broadcasting service (sound)
BT	Broadcasting service (television)
F	Fixed service
M	Mobile, radiodetermination, amateur and related satellite services
P	Radiowave propagation
RA	Radio astronomy
RS	Remote sensing systems
S	Fixed-satellite service
SA	Space applications and meteorology
SF	Frequency sharing and coordination between fixed-satellite and fixed service systems
SM	Spectrum management
SNG	Satellite news gathering
TF	Time signals and frequency standards emissions
V	Vocabulary and related subjects

Note: This ITU-R Recommendation was approved in English under the procedure detailed in Resolution ITU-R 1.

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RECOMMENDATION ITU-R BS.2019

**Audio system for the production and international exchange
of 3DTV programmes for broadcasting**

(2012)

Scope

This Recommendation specifies the audio system that should be used worldwide for the production¹ and international exchange of the audio component of 3DTV² programmes for broadcasting; this Recommendation does not apply to the audio for UHDTV 3DTV systems.

The ITU Radiocommunication Assembly,

considering

- a) that programme producers and broadcasters are producing 3DTV programmes for domestic broadcasting and for international programme exchange;
- b) that there is a need for a set of ITU-R specifications to be used worldwide in the production of 3DTV programmes, in order to facilitate their international exchange;
- c) that 3DTV broadcasters, programme producers and distributors need to preserve the value and quality of their programmes for television broadcast use and therefore have an interest in protecting their programmes from technical obsolescence;
- d) that consequently the audio system to be used worldwide, now and in the foreseeable future, for the production and international exchange of the audio component of 3DTV programmes for broadcasting should provide the highest audio quality that current systems already widely implemented in the world can achieve;
- e) that Recommendation ITU-R BS.775 – Multichannel stereophonic sound system with and without accompanying picture, specifies a universal stereophonic audio system (the 5.1 system), which provides high audio quality, high flexibility and a realistic surround sound effect and is currently in widespread use for the production and international exchange of television programmes; this system has three front channels and two rear/side channels together with an optional low frequency effects (LFE) channel, and this system provides the highest audio quality of current broadcast systems;
- f) that Recommendation ITU-R BS.775 also specifies ways to downmix or upmix audio signals in those cases when presentation of a smaller or a larger number of audio channels is required,

recommends

- 1** that audio produced for 3DTV programmes should preferably use the 5.1 audio system specified in Recommendation ITU-R BS.775 for the production and international exchange of 3DTV programmes;

¹ This Recommendation uses the term “production” in the sense that it includes the adaptation of the content for the final playout (tailoring). Acquisition (recording) and pre-mastering are not restricted from using a larger number of channels.

² In the context of this Recommendation the term 3DTV is used to convey a stereoscopic image or image pair.

2 that, when there is sufficient bandwidth available, the audio channels of the 5.1 channel audio produced for 3DTV programmes should be exchanged as uncompressed, independent full-quality channels, and that when bandwidth constraints necessitate exchange in a bit rate reduced representation, any audio coding system used should meet the requirements of Recommendation ITU-R BS.1548;

3 that when the optional LFE channel of the 5.1 audio system is used for the production and international exchange of 3DTV programmes, usage of that channel should comply with the practices specified in Recommendation ITU-R BS.775;

4 that the choices made for the various audio parameters among those specified in Recommendation ITU-R BS.775 (e.g. number of the sound channels, etc.) should be reported in the metadata that accompanies the programme.
