



**Recommendation ITU-R BS.1864-0**  
(03/2010)

**Operational practices for loudness in the  
international exchange of digital  
television programmes**

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

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

Electronic Publication  
Geneva, 2016

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## RECOMMENDATION ITU-R BS.1864-0\*

**Operational practices for loudness in the international exchange  
of digital television programmes**

(Question ITU-R 58/6)

(2010)

**Scope**

This Recommendation specifies operational practices intended to improve the consistency of loudness of digital television programmes that are intended for international exchange. These practices apply to the production of those programmes. They do not apply to the distribution or emission of broadcast programmes.

The ITU Radiocommunication Assembly,

*considering*

- a) that the audience of digital television programmes enjoys programmes better when their loudness is reasonably uniform, irrespective of different programme sources and different programme types;
- b) that it would be very desirable if reasonable consistency in the loudness of sound programmes, and of sound accompanying television programmes, were also achieved on internationally exchanged programmes;
- c) that Recommendation ITU-R BS.1726 specifies use of either  $-18$  dBFS or  $-20$  dBFS for “alignment level”, but that “alignment level” does not directly correspond to audio loudness;
- d) that Recommendation ITU-R BS.1770 – Algorithms to measure audio programme loudness and true-peak audio level, specifies a method for the measurement of audio programme loudness;
- e) that Recommendation ITU-R BS.1771 – Requirements for loudness and true-peak indicating meters, specifies the requirements for loudness meters that employ the algorithms specified in Recommendation ITU-R BS.1770, thus enabling the worldwide use of loudness meters that behave in a consistent manner and provide a consistent indication of loudness on the same programme, irrespective of programme content;
- f) that one programme element that is of concern to the audience in programmes that are predominantly dialogue is the loudness of dialogue, and that this should desirably be uniform in internationally exchanged programmes; for other types of internationally exchanged programmes, such as short spots, or programmes featuring important non-dialogue subject matter, it is the loudness of the full programme mix that is of most concern to the audience;
- g) that some audio systems include metadata for controlling loudness and others do not,

*further considering*

- a) that reducing inter-programme audio loudness differences may improve audience satisfaction;
- b) that practical measurement techniques, and anticipated consequences of the way metering algorithms are implemented, suggest that a difference may be anticipated of up to 2 dB between

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\* Radiocommunication Study Group 6 made editorial amendments to this Recommendation in the year 2011 and 2016 in accordance with Resolution ITU-R 1.

measurements conducted on the same content by different facilities, and that such variations are anticipated and acceptable in practice;

c) that studies have shown that listeners can comfortably tolerate some loudness variation as long as the loudness does not deviate from a “comfort zone”, which is a loudness window of approximately +3 to –5 dB relative to the desired loudness,

*recommends*

1 that loudness measurements should be made, including all audio channels, in conformance with the appropriate loudness measurement algorithm specified in Recommendation ITU-R BS.1770;

2 that for international exchange of digital television programmes, when metadata is employed to indicate the loudness of the programme, the metadata value should correspond to the average loudness of the full programme mix, or to the average loudness of the normal dialogue component – whichever is deemed appropriate by the programme provider (see Note 2);

3 that for international exchange of digital television programmes, when metadata is not employed to indicate the loudness of the programme, the measurement of average loudness should be made on the full programme mix, or on the normal dialogue component – whichever is deemed appropriate by the programme provider;

4 that for the international exchange of digital television programmes, the target loudness should be –24 LKFS;

5 that Note 1 is to be regarded as part of this Recommendation,

*and further recommends*

1 that, variations of up to 2 dB in measured loudness should be anticipated and, due to the “comfort zone” mentioned in *further considering* c), should be considered acceptable as long as there is no consistent operation at either extreme;

2 that due account be taken of the fact that there may be occasions where a departure from the provisions of this recommendation is necessary or desired for various reasons, such as overriding creative requirements, legacy programmes, or the need to match loudness of heavily compressed sound recordings.

NOTE 1 – “Normal” dialogue is that which is spoken in a normal level of speaking voice, that is, not shouting or whispering.

NOTE 2 – The term “programme provider” is used in this Recommendation to indicate the entity that holds the intellectual property rights (IPR) to a given programme, or the company that the IPR holder has authorized to distribute the programme to broadcasters. Broadcasters on their part assemble the programme with other programmes in their programme schedules for distribution to their audiences.

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