



Radiocommunication Bureau (BR)

Administrative Circular
CACE/868

20 July 2018

To Administrations of Member States of the ITU, Radiocommunication Sector Members, ITU-R Associates participating in the work of the Radiocommunication Study Group 6 and ITU Academia

Subject: Radiocommunication Study Group 6 (Broadcasting Service)
– Approval of 1 revised ITU-R Question

By Administrative Circular CACE/863 of 16 May 2018, 1 draft revised ITU-R Question was submitted for approval by correspondence in accordance with Resolution ITU-R 1-7 (§A2.5.2.3).

The conditions governing this procedure were met on 16 July 2018.

The text of the approved Question is attached for your reference in the Annex to this letter and will be published by the ITU.

A handwritten signature in blue ink, appearing to be 'FR'.

François Rancy
Director

Annex: 1

Distribution:

- Administrations of Member States of the ITU and Radiocommunication Sector Members participating in the work of Radiocommunication Study Group 6
- ITU-R Associates participating in the work of Radiocommunication Study Group 6
- ITU Academia
- Chairmen and Vice-Chairmen of Radiocommunication Study Groups
- Chairman and Vice-Chairmen of the Conference Preparatory Meeting
- Members of the Radio Regulations Board
- Secretary-General of the ITU, Director of the Telecommunication Standardization Bureau, Director of the Telecommunication Development Bureau

Annex

QUESTION ITU-R 139-1/6

Methods for rendering of advanced audio formats

(2015-2018)

The ITU Radiocommunication Assembly,

considering

- a) that there is an increasing interest in the production of sound and television programmes in advanced sound systems, which can provide a listening experience that matches the enhanced viewing experience provided by image production in HDTV (see Recommendation ITU-R BT.709) and UHD TV (see Recommendation ITU-R BT.2020);
- b) that Recommendation ITU-R BS.2051 specifies advanced sound systems that can provide an enhanced listening experience to a properly equipped radio or television audience;
- c) that Recommendation ITU-R BS.1909 specifies as typical viewing environments theatre and large theatre environments as well as large-to-average size room environments, and mobile such as in-car or personal environments;
- d) that consistency in sound production requires consistency in the sound reproduction system that is employed in the production environment and that this implies the need for consistency in the reproduction of the advanced sound system in the production chain;
- e) that the rendering system that creates the loudspeaker signals from the advanced sound system signals is a critical component to provide the needed consistency in reproduction.

further considering

- a) that a description of a renderer¹ should be complete and self-contained. Ideally it abstracts from implementation details and provides those by using a reference implementation;
- b) that the description should clearly describe the operations and signal processing to be carried out, based on the incoming audio data, metadata and the local metadata which configure the rendering process and not contain any ambiguities;
- c) that if a file format does exist, this can be referred to in terms of parameters and storage, but in general the specification should not be linked to specific implementations of such parameters in aforementioned file format;
- d) that a renderer should be able to support all speaker setups as proposed in Recommendation ITU-R BS.2051,

¹ A renderer converts a set of audio signals with associated metadata to a different configuration of audio signals and metadata, based on the provided content metadata, and local environmental metadata. It may be used for quality evaluation purposes or in the programme production process.

decides that the following Questions should be studied

- 1 What are the requirements for renderers for use in the production and monitoring of advanced sound programmes?
- 2 What are the requirements for renderers for use in quality evaluation?
- 3 What are the specifications of renderers that are satisfactory for use in the production and monitoring of advanced sound programmes?
- 4 What are the specifications for renderers that are satisfactory for use in quality evaluation?
- 5 What signal processing and metadata inputs (environmental metadata, content related metadata) are needed for required operation of a renderer?
- 6 What algorithms should be used to derive the speaker signals based on all possible input formats (object-based, channel-based, scene-based and combinations thereof) according to Recommendation ITU-R BS.2051?

further decides

- 1 that the results of the above studies should be included in one or more Recommendations and other ITU-R texts;
- 2 that the above studies should be completed by 2019.

Category: S1
