Radiocommunication Bureau (BR)

Administrative Circular
CACE/735

26 June 2015

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

Subject: **Radiocommunication Study Group 6 (Broadcasting service)**

– **Adoption of 1 new ITU-R Question and 1 revised ITU-R Question and their simultaneous approval by correspondence in accordance with § 10.3 of Resolution ITU-R 1-6 (Procedure for the simultaneous adoption and approval by correspondence)**

By Administrative Circular CACE/721 dated 17 April 2015, 1 draft new ITU-R Question and 1 draft revised ITU-R Question were submitted for simultaneous adoption and approval by correspondence (PSAA), following the procedure of Resolution ITU-R 1-6 (§ 10.3).

The conditions governing this procedure were met on 17 June 2015.

The texts of the approved Questions are attached for your reference in Annexes 1 and 2 and will be published in Revision 7 to Document 6/1 which contains the ITU-R Questions approved by the 2012 Radiocommunication Assembly and assigned to Radiocommunication Study Group 6.

François Rancy
Director

Annexes: 2

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
- Chairmen and Vice-Chairmen of Radiocommunication Study Groups and the Special Committee on Regulatory/Procedural Matters
- 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

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Annex 1

QUESTION ITU-R 139/6

Methods for rendering of advanced audio formats

(2015)

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 UHDTV (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 baseline[1] renderer 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. Extensions to the specification can allow points of enhancement but this is not part of the baseline renderer specification;

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[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. A baseline renderer is an instance of a renderer which is used for quality evaluation purposes and in the programme production process. It being clearly defined does allow a comparison with other possible instances. It does not necessarily offer the best possible quality of the auditory scene and may not support all possible metadata, but can deliver a rendition which will preserve the artistic intent for a defined set of rendering conditions.

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 baseline rendering should be able to support all speaker setups as proposed in ITU-R BS.2051,

decides that the following Questions should be studied

1 What are the requirements for a baseline renderer for use in the production of advanced sound programmes and quality evaluation?

2 What is the specification of a baseline renderer that is satisfactory for use in the production of advanced sound programmes and quality evaluation?

3 What signal processing and metadata inputs (environmental metadata, content related metadata) are required for satisfactory operation of a baseline renderer?

4 What algorithm 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 a Recommendation;

2 that the above studies should be completed by 2016.

Category: S1

Annex 2

QUESTION ITU-R 132-3/6

Digital terrestrial television broadcasting technology and planning

(2010-2011-2011-2015)

The ITU Radiocommunication Assembly,

considering

a) that many administrations have already introduced, and others are introducing, Digital Terrestrial Television Broadcasting (DTTB) services in VHF (Band III) and/or UHF (Bands IV/V) bands;

b) that experience gained through the implementation of DTTB services will be useful in refining the assumptions and techniques to be applied in the planning and implementation of DTTB services,

decides that the following Questions should be studied

1 What are the frequency planning parameters for such services, including but not limited to:

– minimum field strengths;
– implications of modulation and emission methods;
– receiving and transmitting antenna characteristics;
– implications of using diversity transmission and reception methods;
– location correction values;
– time variability values;
– single frequency networks;
– speed ranges;
– environmental noise and its impact on digital terrestrial TV reception;
– effect of wet foliage on digital terrestrial TV reception;
– effect of wind turbine farms and airplane flutter on digital terrestrial TV reception;
– building penetration loss;
– indoor location variations?

2 What is the likely impact on matters related to the planning of broadcasting networks for terrestrial television broadcasting in the migration from existing[1] digital television modulation parameters to new and more spectrally efficient[2] modulation parameters?

3 What protection ratios are required when two or more digital transmitters of the same system, digital television and multimedia transmitters of different systems, or analogue and digital television transmitters are operating:

– in the same channel;

– in adjacent channels;

– with overlapping channels;

– in other potential interference relationships (e.g. image channel)?

4 What receiver characteristics should be used for frequency planning with respect to more efficient use of the frequency spectrum (e.g. selectivity, noise figure, etc.)?

5 What are the protection ratios needed to protect television broadcasting services from other services sharing the bands or operating in adjacent bands?

6 What techniques can be used to mitigate interference?

7 What are acceptable durations of outages due to local short-term interference to DTTB services?

8 What are the technical bases required for planning which lead to efficient utilization of the VHF and UHF bands for terrestrial television services?

9 What are the characteristic multipath conditions that need to be taken into account in the planning of such services?

10 What time availability percentages can be practically achieved in DTTB service implementation and what margins in planning parameters are required to achieve these time availability percentages?

11 What technical or planning criteria can be optimized to facilitate the implementation of terrestrial digital broadcasting, taking into account existing services?

12 What are the characteristics of the mobile multipath channel that need to be taken into account in the use of mobile reception, at different speeds?

13 What are the characteristics of the multipath channel that need to be taken into account in the use of hand-held reception, at different speeds?

14 What are the appropriate methods to multiplex the required signals (including vision, sound, data, etc.) into the channel?

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1 For example DVB-T (ITU-R DTTB System B).

2 For example DVB-T2.

15 What methods can be used to combine several multiplex channels within one transmission?

16 What are the appropriate methods for error protection?

17 What are the appropriate modulation and emission methods and their relevant parameters, for the broadcasting of digitally encoded TV signals in terrestrial channels?

18 What are the appropriate strategies to introduce and implement digital terrestrial TV broadcast services, taking account of existing terrestrial broadcast services?

19 What are radiocommunication technologies or applications that could be provided by digital terrestrial TV systems and what sets of system parameters could be used for different applications?

20 What strategies should be employed by administrations, particularly those sharing common borders, for migration from an established digital terrestrial television broadcasting service to a more advanced digital terrestrial television broadcasting service?

further decides

1 that the results of the above studies should be included in (a) Report(s) and/or Recommendation(s);

2 that the above studies should be completed by 2018.

Category: S3