



Radiocommunication Bureau
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Administrative Circular
CACE/506

16 April 2010

**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 the Special Committee on Regulatory/Procedural Matters**

Subject: Radiocommunication Study Group 6

- **Approval of 4 new ITU-R Questions and 3 revised ITU-R Questions**
- **Suppression of 16 ITU-R Questions**

By Administrative Circular CAR/289 of 4 January 2010, 4 draft new and 3 draft revised ITU-R Questions were submitted for approval by correspondence in accordance with Resolution ITU-R 1-5 (§ 3.4). In addition, the Study Group proposed the suppression of 16 ITU-R Questions. The conditions governing these procedures were met on 5 April 2010.

The texts of the approved Questions are attached for your reference (Annexes 1 to 7) and will be published in Revision 1 to [Document 6/1](#) which contains the ITU-R Questions approved by the 2007 Radiocommunication Assembly and assigned to Radiocommunication Study Group 6. The suppressed ITU-R Questions are indicated in Annex 8.

Valery Timofeev
Director, Radiocommunication Bureau

Annexes: 8

Distribution:

- Administrations of Member States and Radiocommunication Sector Members
- ITU-R Associates in the work of Radiocommunication Study Group 6
- Chairmen and Vice-Chairmen of Radiocommunication Study Groups and 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

Annex 1

QUESTION ITU-R 132/6

Digital terrestrial television broadcasting planning*

(2010)

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?

* This Question deals with studies related to the implementation of digital terrestrial broadcasting services, which do not impact the GE06 Agreement and Plan.

- 2** What is the likely impact on matters related to the planning of broadcasting networks for terrestrial television broadcasting in the migration from existing¹ digital television modulation parameters to new and more spectrally efficient² 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 the technical bases required for planning which lead to efficient utilization of the VHF and UHF bands for terrestrial television services?
- 8** What are the characteristic multipath conditions that need to be taken into account in the planning of such services?
- 9** What technical or planning criteria can be optimized to facilitate the implementation of terrestrial digital broadcasting, taking into account existing services?
- 10** 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?
- 11** 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?
- 12** What are the appropriate methods to multiplex the required signals (including vision, sound, data, etc.) into the channel?
- 13** What are the appropriate methods for error protection?
- 14** What are the appropriate modulation and emission methods and their relevant parameters, for the broadcasting of digitally encoded TV signals in terrestrial channels?
- 15** What are the appropriate strategies to introduce and implement digital terrestrial TV broadcast services, taking account of existing terrestrial broadcast services?

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

² For example DVB-T2.

16 What are other radiocommunication technologies or applications that could be provided by digital terrestrial TV systems?

17 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 2015.

Category: S3

Annex 2

QUESTION ITU-R 133/6

Enhancements of digital terrestrial television broadcasting

(2010)

The ITU Radiocommunication Assembly,

considering

- a) that terrestrial television broadcasting undergoes the transition from analogue to digital emission;
- b) that digital emission can provide opportunities for enhancements of broadcasting, including:
 - HDTV;
 - digital three-dimensional (3D) TV broadcasting;
 - portable reception;
 - mobile reception;
 - high bit-rate data broadcasting;
 - multimedia broadcasting;
 - interactive broadcasting;
- c) that there is considerable interest in maximizing the efficiency of the digital terrestrial television broadcasting;
- d) that there is considerable progress in development of compression techniques for digital television,

decides that the following Questions should be studied

- 1 What are the anticipated future developments in terrestrial television broadcasting technology following the transition to digital broadcasting?
- 2 What are the future requirements for digital terrestrial television broadcasting technologies?
- 3 What efficiencies will be achieved by the enhancements of broadcasting?

further decides

- 1 that the results of the above studies should be included in (a) Report(s) and/or Recommendation(s);
- 2 the above studies should be completed by 2015.

Category: S3

Annex 3

QUESTION ITU-R 134/6

Recording of digital sound programme signals for international exchange

(2010)

The ITU Radiocommunication Assembly,

considering

- a) that the exchange of sound programmes is very important and extensive and it should be taken into account;
- b) that international standardization of the audio signal formats and of the methods used for the international exchange of sound programme material offers important advantages;
- c) that the alignment of operating practices used for the international exchange of sound programme material is highly desirable,

decides that the following Questions should be studied

- 1 Which form should be preferred for the international exchange of digital sound programme signals (recorded supports, bit streaming, file transfer, transfer of files encapsulated into IP packets, etc.)?
- 2 When recording supports are used for international programme exchange, which recording supports should be preferred (magnetic tape, magnetic discs, optical discs, etc.)?
- 3 Which digital audio coding or lossless compression systems offer the greatest advantages for use in the international exchange of sound programme signals?
- 4 Which operating practices should be adopted to ease the international exchange of digital sound programme signals?

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

Annex 4

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

Annex 5

QUESTION ITU-R 45-3/6*

Broadcasting of multimedia and data applications

(2003-2005-2009-2010)

The ITU Radiocommunication Assembly,

considering

- a) that digital television and sound broadcasting systems have been implemented in many countries;
- b) that multimedia and data broadcasting services have been introduced in many countries;
- c) that mobile radiocommunication systems with advanced information technologies have been implemented in many countries;
- d) that reception of digital broadcasting services is possible both inside and outside the home with fixed receivers such as TV sets in the living room, as well as handheld/portable/vehicular receivers;
- e) that the characteristics of mobile reception and stationary reception are quite different;
- f) that the display sizes and receiver capabilities may be different between handheld / portable / vehicular receivers and fixed receivers;
- g) that the format of the transmitted information should be such that the content can be displayed intelligibly on as many types of terminals as possible;
- h) the need for interoperability between the telecommunication services and interactive digital broadcasting services;
- j) the need to harmonize technical methods used to implement content protection and conditional access;
- k) that digital multimedia video information systems for presentation of various kinds of multimedia information applicable to programmes such as dramas, plays, sporting events, concerts, cultural events, etc. are widespread, and those systems are being installed for collective viewing,

* This Question should be brought to the attention of ITU-R Study Group 5 and ITU-T Study Group 16.

decides that the following Questions should be studied

- 1** What are the user requirements for broadcasting of multimedia and data applications:
 - for mobile reception;
 - for stationary reception?
- 2** What are the user requirements for digital multimedia video information systems on the basis of standard definition television (SDTV) and high definition television (HDTV), ultra high definition television (UHDTV), large screen digital imagery (LSDI) and extremely high resolution imagery (EHRI) for collective indoor and outdoor viewing?
- 3** What characteristics are required for service assembly and access for broadcasting of multimedia and data applications for mobile reception and for stationary reception?
- 4** What characteristics are required for service assembly and access for the digital multimedia video information systems for collective indoor and outdoor viewing?
- 5** What data transport protocol(s) is (are) most suited to deliver broadcast multimedia and data contents to handheld, portable and vehicular receivers and to fixed receivers?
- 6** What solutions can be adopted to ensure the interoperability between the telecommunication services and interactive digital broadcasting services?

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 2012.

Category: S2

Annex 6

QUESTION ITU-R 40-1/6*

Extremely high-resolution imagery

(1993-2002-2010)

The ITU Radiocommunication Assembly,

considering

- a) that TV technology at a number of levels of quality may find applications in both broadcast and non-broadcast services;
- b) that the Radiocommunication Sector is studying a range of TV systems for broadcast uses;
- c) that ITU-R has been studying extremely high-resolution imagery and expanded hierarchy of large screen digital imagery, and has established Recommendations ITU-R BT.1201-1 that provides the guideline of image characteristics for extremely high-resolution imagery and ITU-R BT.1769 that provides the parameter values for expanded hierarchy of image formats for LSDI applications;
- d) that HDTV technology along with large screen displays has become the norm in homes, where audiences enjoy high-quality programme content;
- e) that progress in display technologies will permit the use of large-screen and extremely high resolution television displays for home viewing;
- f) that additional visual experiences beyond HDTV can be offered by presenting higher resolution images, which can give a stronger sensation of reality to viewers;
- g) that broadcast applications with such a feature, called ultra high definition television (UHDTV) can be considered as one of the forms of extremely high-resolution imagery;
- h) that some administrations consider introducing broadcasting of UHDTV to the home associated with improved efficient coding and transmission technologies;
- j) that in some broadcast-related applications (for example: computer graphics, printing, motion pictures) an extremely high resolution is expected;
- k) that studies on higher resolution digital image architecture are being conducted in some organizations,

* This Question should be brought to the attention of the International Electrotechnical Commission (IEC), the International Organization for Standardization (ISO) and the Telecommunication Standardization Sector.

decides that the following Questions should be studied

- 1 What kind of approach should be taken to realize such an extremely high-resolution imagery system for broadcasting and non-broadcasting applications?
- 2 What features such a system should have to allow for broadcasting applications and to assure harmonization between different applications?
- 3 What kind of parameters should be determined for these systems in programme origination and exchange?
- 4 What characteristics should be recommended in every part of the TV broadcasting chain using extremely high-resolution imagery, namely acquisition, recording, contribution, distribution, emission and display?

NOTE 1 – See Reports ITU-R BT.2042-3 and ITU-R BT.2053-2; see also Question ITU-R 15-2/6.

further decides

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

Category: S2

Annex 7

QUESTION ITU-R 59-1/6

Archiving of sound programmes in broadcasting

(1995-1999-2010)

The ITU Radiocommunication Assembly,

considering

- a) that preservation of important sound programme recordings is essential and it forms an integral part of the activity of a broadcast organization;
- b) that a compromise may generally need to be found between archived sound quality, volume of the archive, speed of access to archived programmes, and number of work stations that can simultaneously access the archive;
- c) that recourse to digital audio servers, using Information Technology (IT) equipment, is currently a viable approach to an efficient archive of sound programmes;
- d) that the storage medium plays an important role in determining the life span of archive material;
- e) that the archival method may require audio coding parameters different from those required for the studio and for the emission of high-quality broadcast signals;
- f) that impairment to audio signals is minimized and the implementation of transcoding equipment is simplified if there is a simple relationship between the digital audio coding standards used for production, transmission, emission and archiving;
- g) that Recommendations on digital audio coding and bit-rate reduction standards are already available both for the studio and for the broadcast environment;
- h) that the quality of legacy recordings could be improved by using restoration techniques, which, with advancement in technologies, may undergo improvements, and this may require the preservation of the original recordings,

decides that the following Questions should be studied

- 1** What digital signal formats should be used to archive sound programme material for broadcasters' purposes?
- 2** What storage methods are best suited for the storage of sound programme material in broadcasters' archives?
- 3** What methods could be used for easy and fast access to the archived programme material?

further decides

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

Category: S2

Annex 8

Suppressed ITU-R Questions

Question ITU-R	Title
1/6	Digital image formats for programme production and exchange for digital television broadcasting
8/6	Methods for the assessment of automated audio metadata extraction systems
36/6	Standards for the high-definition television studio and for international programme exchange
47/6	Prevention of photosensitive epileptic seizures caused by television
63/6	Calibration of the listening level for headphones in subjective listening tests
67/6	Methodologies for subjective assessment of audio and video quality (This Question is a duplicate of Question 102/6)
77-1/6	Methods and practices for digital recording of television programme material intended for international exchange
78-1/6	Digital recording of high-definition television programmes for international exchange
79/6	The harmonization of standards between broadcast and non-broadcast applications of television
81-1/6	Subjective assessments of the quality of television pictures including alphanumeric and graphic pictures
86/6	Overall coordination of the technical characteristics and associated test methods for the separate parts of the television signal chain
90/6	Television recording format for long-term programme archives
106-1/6	Recording formats for different media to be used for the international exchange of recordings for high-definition television programme evaluation
110/6	Processability margins required for contribution programme material in television production
115/6	Registration methods for television and multimedia images
116/6	Parameters and tolerance limits for the technical quality of audio signals intended for international exchange

The following three ITU-R Questions are suppressed consequential to the approval of the revised Question ITU-R 134/6 and Question ITU-R 135/6:

58/6	Recording of sound programmes for international exchange
37/6	System parameters for multichannel sound systems
39/6	Standards for digital audio techniques