INTERNATIONAL TELECOMMUNICATION UNION

Radiocommunication Bureau
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Administrative Circular
CAR/289

4 January 2010

To Administrations of Member States of the ITU

Subject: **Radiocommunication Study Group 6**

– **Proposed approval of 4 draft new ITU-R Questions and 3 draft revised ITU-R Questions**

– **Proposed suppression of 16 ITU-R Questions**

At the meeting of Radiocommunication Study Group 6 held on 16 and 17 November 2009, 4 draft new ITU-R Questions and 3 draft revised ITU-R Questions were adopted and it was agreed to apply the procedure of Resolution ITU-R 1-5 (see § 3.4) for approval of Questions in the interval between Radiocommunication Assemblies. Furthermore, the Study Group proposed the suppression of 16 ITU-R Questions.

Having regard to the provisions of § 3.4 of Resolution ITU-R 1-5, you are requested to inform the Secretariat (brsgd@itu.int) by 5 April 2010, whether your Administration approves or does not approve the proposals above.

After the above-mentioned deadline, the results of this consultation will be notified in an Administrative Circular. If the Questions are approved, they will have the same status as Questions approved at a Radiocommunication Assembly and will become official texts attributed to Radiocommunication Study Group 6 (see: http://www.itu.int/pub/R-QUE-SG06/en).

Valery Timofeev
Director, Radiocommunication Bureau

Annexes: 8

– 4 draft new ITU-R Questions, 3 draft revised ITU-R Questions and proposed suppression of 16 ITU-R Questions

Distribution:
– Administrations of Member States of the ITU
– Radiocommunication Sector Members participating in the work of Radiocommunication Study Group 6
– ITU-R Associates participating in the work of Radiocommunication Study Group 6

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Annex 1

(Source: Document 6/190)

DRAFT NEW QUESTION ITU-R [DTTBPLAN]/6

Digital terrestrial television broadcasting planning*

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?

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

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

2 For example DVB-T2.

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?

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

(Source: Document 6/191)

DRAFT NEW QUESTION ITU-R [DTTBTECH]/6

Enhancements of digital terrestrial television broadcasting

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

(Source: Document 6/63)

DRAFT NEW QUESTION ITU-R [RDSP]/6[1]

Recording of digital sound programme signals for international exchange

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

[1] When this draft new Question is approved, Question ITU-R 58/6 will be suppressed.

Annex 4

(Source: Document 6/64)

DRAFT NEW QUESTION ITU-R [SPDS]/6[1]

System parameters for digital sound systems*

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,

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[1] When this draft new Question is approved, Questions ITU-R 37/6 and ITU-R 39/6 will be suppressed.

* 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

(Source: Document 6/216)

DRAFT REVISION OF QUESTION ITU-R 45-2/6*

Broadcasting of multimedia and data applications

(2003-2005-2009)

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~~audiovisual~~ information~~al~~ 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 ~~collected~~ 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~~al~~ 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?~~;~~

~~and~~

~~What is necessary to implement these requirements?~~

3~~2~~ What characteristics are required for service assembly and access~~system characteristics are required~~ 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~~3~~ 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~~4~~ 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 ~~2011~~2012.

Category: S2

Annex 6

(Source: Document 6/62)

DRAFT REVISION OF QUESTION ITU-R 40/6*

Extremely high-resolution imagery

(1993-2002)

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;

~~c~~i) that in some broadcast-related applications (for example: computer graphics, printing, motion pictures) an extremely high resolution is expected;

~~d~~k) that studies on higher resolution digital image architecture are being conducted in some organizations,

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* 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 ~~future applications in~~ 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.2042-1 and ITU-R BT.2053-1; see also Questions 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 ~~2005~~2012.

Category: S2

Annex 7

(Source: Document 6/65)

DRAFT REVISION OF QUESTION ITU-R 59/6

Archiving of sound programmes in broadcasting

(1995-1999)

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~~instant access to a huge volume of archive material is not possible and the process is time consuming~~;

c) that recourse to digital audio servers~~recording,~~ using Information Technology (IT) equipment, is currently a viable approach to an efficient archive of sound programmes~~leads to the improvement of final quality of the signal~~;

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~~e~~) that impairment to audio signals is minimized and the implementation~~cost~~ of transcoding equipment is simplified~~reduced~~ if there is a simple relationship between the digital audio coding standards used for production, transmission, emission and archiving;

g~~f~~) that Recommendations on digital audio coding and bit-rate reduction standards are already available both for the studio and for the broadcast environment~~s~~;

~~g) that archival equipment may need coding parameters different from those required for the studio and for the emission of high quality broadcast signals;~~

h) that the quality of legacy~~old~~ recordings could be improved by using restoration techniques, which,~~;~~

~~j) that~~ with ~~the~~ advancement in technologies~~, restoration techniques~~ may undergo ~~many~~ improvements, and ~~and~~ this may require the preservation of the original recordings~~;~~,

~~k) that the large channel capacity required for the digital recording of audio signals can be minimized by using bit-rate reduction techniques;~~

~~l) that a number of digital bit-rate reduction techniques are available and the International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) have already set standards for this technique (ISO/IEC 11172-3),~~

decides that the following Questions should be studied

1 ~~In w~~What digital signal formats ~~(digital or analogue)~~ should be used to archive ~~the~~ sound programme ~~archival~~ material ~~be stored~~ for broadcasters' purposes?

2 What storage~~recording~~ methods are best suited for the storage of sound programme material in broadcasters' archives?

~~**3** What digital audio coding standards should be used if digital storage is chosen, and could bit-rate reduction be used?~~

4~~3~~ What methods could be used for easy and fast access to the archived programme~~s~~ 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 ~~2006~~2012.

Category: S2

Annex 8

(Source: Document 6/186)

Questions proposed for suppression

Question ITU-R	Title	Category	Date of last approval
1/6	Digital image formats for programme production and exchange for digital television broadcasting	S1	2001
8/6	Methods for the assessment of automated audio metadata extraction systems	S2/AP	2001
36/6	Standards for the high-definition television studio and for international programme exchange	S3	2002
47/6	Prevention of photosensitive epileptic seizures caused by television	S1	2003
63/6	Calibration of the listening level for headphones in subjective listening tests	S1/AP	1998
67/6	Methodologies for subjective assessment of audio and video quality (This Question is a duplicate of Question 102/6)	S2/AP	1999
77-1/6	Methods and practices for digital recording of television programme material intended for international exchange	S2/AP	2005
78-1/6	Digital recording of high-definition television programmes for international exchange	S3/AP	2005
79/6	The harmonization of standards between broadcast and non-broadcast applications of television	S1	1993
81-1/6	Subjective assessments of the quality of television pictures including alphanumeric and graphic pictures	S3/AP	2004
86/6	Overall coordination of the technical characteristics and associated test methods for the separate parts of the television signal chain	S2/AP	1993
90/6	Television recording format for long-term programme archives	S3/AP	1999
106-1/6	Recording formats for different media to be used for the international exchange of recordings for high-definition television programme evaluation	S2/AP	2004
110/6	Processability margins required for contribution programme material in television production	S2	2003
115/6	Registration methods for television and multimedia images	S1	2005
116/6	Parameters and tolerance limits for the technical quality of audio signals intended for international exchange	S1	2005