INTERNATIONAL TELECOMMUNICATION UNION

Radiocommunication Bureau
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Administrative Circular
CACE/475

25 March 2009

To Administrations of Member States of the ITU,
Radiocommunication Sector Members, ITU-R Associates
participating in the work of Radiocommunication Study Group 4
and the Special Committee on Regulatory/Procedural Matters

Subject: **Radiocommunication Study Group 4**

– **Approval of 11 new ITU-R Questions and 1 revised ITU-R Question**

– **Suppression of 34 ITU-R Questions**

By Administrative Circular CAR/267 of 15 December 2008, 11 draft new ITU-R Questions and 1 draft revised ITU-R Question 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 34 ITU-R Questions.

The conditions governing these procedures were met on 15 March 2009.

The texts of the approved Questions are attached for your reference (Annexes 1 to 12) and will be published in Addendum 2 to Document 4/1 which contains the ITU-R Questions approved by the 2007 Radiocommunication Assembly and assigned to Radiocommunication Study Group 4. The suppressed ITU-R Questions are indicated in Annex 13.

Valery Timofeev
Director, Radiocommunication Bureau

Annexes: 13

Distribution:

- Administrations of Member States and Radiocommunication Sector Members
- ITU-R Associates in the work of Radiocommunication Study Group 4
- 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 275/4

Performance objectives of digital links in the fixed-satellite and mobile-satellite services forming elements of the Next Generation Network

(2009)

The ITU Radiocommunication Assembly,

considering

a) that fixed-satellite and mobile-satellite systems may be part of the Next Generation Network (NGN);

b) that an overview of the NGN is given in ITU-T Recommendations Y.2001 and Y.2011;

c) that availability and performance criteria for transmission of NGN services and applications may have an impact on satellite link design;

d) that new requirements for NGN protocols and applications are constantly appearing which may have an impact on satellite link design;

e) that transmission of NGN traffic on satellite links may require performance objectives different from those contained in relevant ITU-T Recommendations and Recommendations ITU-R S.1062, ITU-R S.1420, ITU-R S.1711, ITU-R M.1475, ITU-R M.1476, ITU-R M.1636 and ITU-R M.1741;

f) that the required system capacity and access schemes must be considered in the design and planning of NGN-based networks in the FSS and MSS,

recognizing

a) that the FSS and MSS systems interwork with terrestrial systems;

decides that the following Questions should be studied

1 What are the satellite reference network architectures required to support the NGN?

2 What are the performance levels required of satellite links to support the various protocols running over the NGN?

3 What is the performance required of satellite links to support, NGN services and applications including voice, video, videotelephony and file transfer running over the NGN?

4 What are the needs for potential improvements to protocols within the NGN model that enhance their performance over satellite links?

5 What impact do NGN security provisions and related issues have on satellite link requirements?

6 What are the required system capacity and access schemes that must be considered in the design and planning of NGN-based networks in the FSS and MSS?

7 What arrangements should be made to offer the most appropriate liaison with other standards bodies recognized by the ITU-R, in accordance with Resolution ITU-R 9-3, and the ITU-T on the subject of NGN?

further decides

1 that the results of the above studies should lead to the formulation of appropriate Reports and/or Recommendations by 2012.

Category: S2

Annex 2

QUESTION ITU-R 276/4*, **, ***

Availability of digital paths in mobile-satellite services

(2009)

The ITU Radiocommunication Assembly,

considering

a) that service interruptions may be caused by natural and man-made phenomena, e.g. solar interference, interference from other systems, ignition noise, attenuation due to multipath or atmospheric effects, which adversely affect the wanted signal and in the case of digital transmission systems, result in bursts of errors;

b) that use of appropriate techniques and inclusion of equipment redundancy, etc., can improve service availability;

c) that system parameters such as receive signal margins affect the link, and therefore system availability;

d) that connection availability requirements may not be the same for different application types and directions of transmission;

e) that since the link between the land earth station and the mobile earth station comprises two sections, the fixed (feeder) link and the service link (satellite to mobile), they need to be considered independently;

f) that the performance of mobile earth stations will be subject to environmental conditions that vary not only with time but also with the location of the stations within the satellite coverage area,

decides that the following Questions should be studied

1 What is the definition of availability in a hypothetical reference digital path of the mobile-satellite services for the different application types of transmissions?

2 What are the realistically achievable system/link availabilities of each element of a mobile-satellite system and of the complete system ?

3 What is the technical relationship between availability and propagation characteristics?

further decides

1 that the results of the above studies should lead to the creation of one or more appropriate Reports and/or Recommendations and be completed by 2012.

Category: S2

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* This Question should be brought to the attention of Radiocommunication Study Group 3.

** Replaces former Question ITU-R 85-1/8.

*** This Question should be studied in conjunction with Question ITU-R 277/4.

Annex 3

QUESTION ITU-R 277/4*

Performance objectives for digital mobile-satellite services

(2009)

The ITU Radiocommunication Assembly,

considering

a) that the total bit error ratio in the hypothetical reference digital path should not be such as would appreciably affect the transmission of information;

b) that the bit error ratio will vary with time due to the effects of varying propagation conditions, including the effects of multipath fading;

c) that the extent to which fading can affect various types of mobile terminals cannot be determined fully until more experimental data are available;

d) that fade margins in the bands typically used for service links (forward/return) to mobile terminals can be substantially different from those in bands typically used for feeder links and this may result in different performance objectives for these two types of links;

e) that the use of error correction coding techniques in mobile-satellite service (MSS) transmissions can result in satisfactory operation at reduced levels of carrier-to-noise plus interference ratio ($C/(N+I)$);

f) that the treatment of performance objectives for safety related services in bands allocated to the MSS could be different than for non-safety related services in those bands;

g) that with respect to message transfer time (end-to-end), performance objectives for store-and-forward services may be less stringent than those for real-time services;

h) that performance objectives for mobile-satellite services may be influenced by those of the terrestrial mobile service where the satellite service is used to complement such services;

j) that Recommendations ITU-R SM.1751 and ITU-R M.1188 introduce a link margin metric which can be applied as an “additional methodology for the evaluation of the effect of interference between radiocommunication networks”, which may be used in the evaluation of performance and the determination of performance objective of non-GSO, TDMA-based, MSS systems serving handheld equipment of users in motion,

* Replaces former Question ITU-R 112/8.

decides that the following Questions should be studied

For each of the various digital mobile-satellite services:

1 What are the bit error performance objectives and preferable bit error performance distributions in the appropriate hypothetical reference digital path?

2 What is the preferred method for correlation of bit error performance with propagation characteristics?

3 What performance parameters, if any, should be defined in order to take account of existing fixed-satellite service performance objectives, bearing in mind that interference levels in MSS systems are significantly different than those for FSS systems?

4 How should the performance objective of § 1 be allocated amongst feeder links and service links?

5 What additional methodologies should be developed to evaluate performance and what are the performance objectives for non-GSO MSS systems, which serve handheld equipment of users in motion?

further decides

1 that the results of the above studies should be included in appropriate Reports and/or Recommendations;

2 that the above studies should be completed before 2012.

Category: S2

Annex 4

QUESTION ITU-R 278/4*

Use of operational facilities to meet power flux-density limitation under Article 21 of the Radio Regulations

(2009)

The ITU Radiocommunication Assembly,

considering

a) that provision 11.31 *a)* of the Radio Regulations (RR) requires the Radiocommunication Bureau (BR) to examine the notified frequency assignments under Article 11 of the RR, *inter alia*, with respect to its conformity with Article 21 (power-flux-density limits);

b) that the BR received in the past and is still receiving submissions from administrations for which the power flux-density examinations show an excess initially varying from 0 to 9 dB, and recently up to 10 dB or more, within a certain range of elevation angles of arrival;

c) that after consultation with the notifying administrations the BR was informed that with the application of technical means such as energy dispersal and backoff control the power-flux density could be adjusted to the level specified in the RR;

d) that, in examining these cases, the BR had given a favourable RR 11.31 *a)* Finding for the submissions mentioned in b) above when the subject notice contained details of the operational/technical scheme to ensure power flux-density conformance to the mandatory RR Article 21 limits;

e) that the BR, in performing its mandatory tasks relating to the application of the above-mentioned provisions, is concerned with the extent to which the application of such operational measures to the space services could be accepted without hampering other services sharing the same frequency bands;

f) that Article 21 contains no power flux-density limits for any frequency bands above 50.2 GHz, and that there are higher frequency bands which have co-primary allocations of broadcasting-satellite and fixed-satellite services (space-to-Earth) with terrestrial services for which no regulatory sharing mechanisms exist,

decides that the following Questions should be studied

1 What are the actual design capabilities of space systems regarding the use of operational facilities such as energy dispersal, back-off control and other techniques for the adjustment of power flux-density levels?

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* Replaces former Question ITU-R 235/4.

2 What are the maximum limits beyond which the use of such power adjustment facilities are no longer feasible?

3 What are the technical means by which such facilities could be used in a given service area and within a certain range of angles of arrival?

4 How would these operational measures (such as the increase in the back-off to overcome the power flux-density excess) affect the performance of the subject satellite networks in the concerned service area?

further decides

1 that the results of the above studies should lead to the formulation of appropriate Reports and/or Recommendations by 2010.

Category: S1

Annex 5

QUESTION ITU-R 279/4

Satellite broadcasting of high-definition television

(2009)

The ITU Radiocommunication Assembly,

considering

a) that a high-definition television (HDTV) service for direct satellite broadcasting is being implemented by some administrations;

b) that a BSS plan needs to take into account the probable simultaneous presence of standard-definition television (SDTV) signals and HDTV signals;

c) that considerable technical progress in space station technology, receiving equipment performance and in transmission methods has been made, and that this may improve the efficiency of orbit and spectrum use;

d) that considerable technical progress in digital compression algorithms has been made, allowing broadcasting of multiple conventional TV programmes, and possibly more than one HDTV programme in a single transponder,

decides that the following Questions should be studied

1 What are the optimum HDTV system parameters and satellite channel configuration for satellite transmission?

2 What are the advantages and disadvantages of different digital coding and modulation schemes for HDTV satellite broadcasting in terms of spectrum efficiency and interference factors (inter- and intra-service sharing)?

3 What are the provisions to achieve compatibility between HDTV and SDTV which are required in the design of the space and ground segments for direct satellite broadcasting, with particular consideration to avoid prejudicing the existing satellite broadcasting Plans within the 11.7-12.7 GHz band, for example:

– configuration of travelling wave tube amplifier to accommodate HDTV channels;

– spacecraft transponder channelization;

– receive terminal design features for the reception of HDTV and SDTV signals?

NOTE 1 – See Recommendation ITU-R BO.786 and Reports ITU-R BO.1075 and ITU-R BO.2007,

further decides

1 that the results of the studies on this Question should be included in appropriate Reports and/or Recommendations;

2 that the above studies should be completed by 2011.

Category: S1

Annex 6

QUESTION ITU-R 280/4

Receiving earth station antennas for the broadcasting-satellite service

(2009)

The ITU Radiocommunication Assembly,

considering

a) the need for detailed information on co-polar and cross-polar patterns of receiving earth station antennas for the planning and coordination of systems in the broadcasting-satellite service (BSS);

b) that the determination of coordination requirements and/or interference assessments between geostationary-satellite systems belonging to the BSS and/or to the fixed-satellite service (FSS), as well as between BSS earth stations and other services sharing the same frequency band, significantly depends on the accuracy of reference antenna patterns used in analysis;

c) that the range of applicability of antenna patterns needs to be precisely defined (i.e. the applicable range of input parameters, the applicable frequency bands, etc.);

d) that the definition of both antenna patterns and their associated range of applicability needs to be based on measurements, rather than on theoretical analysis;

e) that new antenna technologies (e.g. multiple-feed antennas, non-circular reflectors) are being widely deployed;

f) that the ITU Radiocommunication Bureau has developed an antenna pattern software library to be used in conjunction with all software used in the application of the relevant procedures of the Radio Regulations,

noting

a) that extensive studies and measurements were conducted to appropriately describe the patterns of antennas in the 12 GHz frequency range, which led to the adoption of Recommendations ITU-R BO.1213 and ITU-R BO.1443 as well as Report ITU-R BO.2029;

b) that BSS feeder links are implemented in frequency bands allocated to the FSS (Earth-to-space), and are using antennas that are compliant with the relevant Recommendations of the ITU-R S-series;

c) that, in order to achieve better performance, BSS space stations employ shaped beams specific to each BSS satellite for both transmitting and receiving,

decides that the following Questions should be studied

1 What are the measured co-polar and cross-polar radiation characteristics of BSS receiving earth station antennas (for both individual and community reception)?

2 What are the reference patterns for the co-polar and cross-polar components applicable to receiving earth station antennas for the BSS (for both individual and community reception)?

3 What is the range of applicability of each antenna pattern (frequency bands, antenna diameter values, etc.)?

4 What are the necessary parameters to implement reference antenna patterns in software tools developed by the ITU Radiocommunication Bureau?

NOTE 1 – Further study under this Question should be aimed at covering the types of antennas needed for the 17 GHz and 21 GHz BSS bands and above,

further decides

1 that the results of the above studies should be included in appropriate Reports and/or Recommendations;

2 that the above studies should be completed by 2011.

Category: S1

Annex 7

QUESTION ITU-R 281/4*

Digital techniques in the broadcasting-satellite service (sound and television)

(2009)

The ITU Radiocommunication Assembly,

considering

a) that certain frequency bands are allocated to be shared equally by the broadcasting-satellite service (BSS) and other space and terrestrial services;

b) that such sharing can lead to mutual interference among services, and can affect the efficiency with which the geostationary-satellite orbit is utilized;

c) that, when planning a service which is shared with other services, it is necessary to specify, for each of the services involved, both the level of wanted signal (field strength or power-flux density) necessary for satisfactory reception, and the level of unwanted signal for interference that may be considered acceptable;

d) that rapid advances in digital techniques for compressed video and audio, and for digital modulation, can allow reductions in the radiated power and/or bandwidth;

e) that the implementation of error-correction coding and/or error-concealment processes can affect the overall bandwidth requirements and cost,

decides that the following Questions should be studied

1 What are appropriate error-correction coding and/or error-concealment processes, based on an evaluation intended to deduce the optimum parameters from bandwidth and cost considerations?

2 What are suitable channel coding and carrier modulation systems for the digital signal, and the bandwidths in which the signal may be efficiently transmitted?

3 What protection ratios are required between two digital signals, and between a digital signal and other types of signals likely to be transmitted in the bands allocated to the BSS (see Question ITU-R 283/4)?

NOTE 1 – See Recommendations ITU-R BO.712, ITU-R BO.651 and Reports ITU-R BO.632, ITU-R BO.634, ITU-R BO.954,

* This Question may be associated with the studies carried out under Question ITU-R 285/4.

further decides

1 that the results of the above studies should be included in appropriate Reports and/or Recommendations;

2 that the above studies should be completed by 2011.

Category: S1

Annex 8

QUESTION ITU-R 282/4

Frequency sharing issues related to the introduction of the broadcasting-satellite service (sound) in the frequency range 1-3 GHz

(2009)

The ITU Radiocommunication Assembly,

considering

a) that frequency allocations to the broadcasting-satellite service (BSS) (sound) and complementary terrestrial broadcasting exist in bands near 1.5, 2.3 and 2.6 GHz for digital sound broadcasting to portable and vehicular receivers;

b) that all three of the allocated bands contain allocations to certain terrestrial services, and that the 2.6 GHz band also contains an allocation to the fixed-satellite service (space-to-Earth) in Regions 2 and 3 and to the mobile-satellite service (Earth-to-space);

c) that it is necessary to ensure that the introduction of the BSS (sound) and complementary terrestrial broadcasting proceeds in a flexible and equitable manner;

d) that this objective is addressed by Resolution 528 (Rev.WRC-03), which calls for the convening of a competent conference for the planning of the broadcasting-satellite service (sound) in the allocated bands, and the development of procedures for the coordinated use of complementary terrestrial broadcasting;

e) that Resolution 528 (Rev.WRC-03) also specifies a coordination procedure to be used for the introduction of digital sound broadcasting-satellite systems in the interim period prior to the conference, and that the calculation methods and interference criteria to be employed in the application of this procedure be based upon relevant ITU-R Recommendations;

f) that Resolution 528 (Rev.WRC-03) calls upon the conference cited in *considering* d), above, to review the criteria for sharing with other services,

decides that the following Questions should be studied

1 What are the preferred technical and operational characteristics of the BSS (sound) systems to be protected, including the noise and interference performance requirements and the budgeting of interference?

2 What are the interference protection requirements of the various types of BSS (sound) systems expressed, for example, in terms of the maximum acceptable level of power flux-density incident from other systems?

3 What constraints on the technical characteristics (e.g. e.i.r.p., pointing angle, pfd) of BSS (sound) systems and on the service they provide (e.g. coverage, availability) might be acceptable in the interest of reducing interference into the systems of other services to acceptable levels?

4 What are the means for coordinating and avoiding mutual harmful interference between BSS (sound) systems, and how do these means compare in effectiveness?

5 What are the means for coordinating BSS (sound) systems with the systems of other services, and what sharing criteria should be used to trigger such coordination?

6 What changes, if any, are needed in the ITU-R Recommendations that specify the calculation methods and interference criteria to be used in evaluating interference under the interim coordination procedures cited in *considering* e)?

7 What are the technical bases for resolving the issues to be addressed by the conference cited in *considering* d)?

NOTE 1 – See Report ITU-R BO.2006 and Recommendation ITU-R BO.1383,

further decides

1 that the results of the above studies should be included in appropriate Reports and/or Recommendations;

2 that the above studies should be completed by 2011.

Category: S1

Annex 9

QUESTION ITU-R 283/4*

Sharing studies between high-definition television in the broadcasting-satellite service and other services

(2009)

The ITU Radiocommunication Assembly,

considering

a) that the development of techniques for high-definition television (HDTV) broadcasting is rapidly progressing;

b) that the ITU Radiocommunication Study Groups have already carried out a number of studies concerning the broadcasting of HDTV signals;

c) that there are allocations to the broadcasting-satellite service (BSS) in the 17.3-17.8 GHz band in Region 2, and in the 21.4-22 GHz band in Regions 1 and 3, capable of accommodating wide RF-band HDTV;

d) that the Plans for the 12 GHz band contained in Appendix 30 of the Radio Regulations (RR) can already accommodate narrow RF-band HDTV;

e) that due account should be taken of other radiocommunication services appearing in Article 5 of the RR, and sharing allocations with the BSS,

decides that the following Questions should be studied

1 What are the appropriate technical provisions for sharing between the BSS when HDTV is used, and other services sharing BSS bands, in the 12, 17 and 21 GHz bands?

2 What are the protection ratio requirements between HDTV and standard-definition television (SDTV) signals, both analogue and digital, and between HDTV signals themselves?

NOTE 1 – See Report ITU-R BO.631,

further decides

1 that the results of the above studies should be included in appropriate Reports and/or Recommendations;

2 that the above studies should be completed by 2011.

Category: S1

* This Question should be brought to the attention of Radiocommunication Study Groups 5 and 7.

Annex 10

QUESTION ITU-R 284/4

Spectrum management issues related to the introduction of the broadcasting-satellite service (sound) in the frequency range 1-3 GHz

(2009)

The ITU Radiocommunication Assembly,

considering

a) that frequency allocations to the broadcasting-satellite service (BSS) (sound) and complementary terrestrial broadcasting exist in bands near 1.5, 2.3 and 2.6 GHz for digital sound broadcasting to fixed, portable and vehicular receivers;

b) that it is necessary to ensure that the introduction of the BSS (sound) and complementary terrestrial broadcasting proceeds in a flexible and equitable manner;

c) that this objective is addressed by Resolution 528 (Rev.WRC-03), which calls for the convening of a competent conference for the planning of the broadcasting-satellite service (sound) in the allocated bands, and the development of procedures for the coordinated use of complementary terrestrial broadcasting;

d) that there are BSS (sound) systems currently in operation, providing national and multi-national services;

e) that, from the point of view of providing wide area coverage, it is desirable to use a common frequency band;

f) that ITU-R has found the study of sharing issues associated with satellite sound broadcasting very complex and difficult to resolve,

decides that the following Questions should be studied

1 What is the most effective way of utilizing the existing capacity for all broadcast sound services, noted in *considering* d) and e)?

2 What is the most effective way to assign frequencies to, and introduce, satellite services which are intended to be received in more than the notifying administration?

further decides

1 that the results of the above studies should be included in appropriate Reports and/or Recommendations;

2 that the above studies should be completed by 2011.

Category: S1

Annex 11

QUESTION ITU-R 285/4

Digital broadcasting of multiple services and programmes in the broadcasting-satellite service

(2009)

The ITU Radiocommunication Assembly,

considering

a) that means for improving the flexibility and efficiency of use of the radio-frequency spectrum are continuously investigated;

b) that there have been significant developments in efficient modulation and channel coding techniques, including but not limited to formats using QPSK and 8PSK modulation techniques;

c) that advances in video and audio compression techniques have shown the practicality of transmitting more than one television and/or audio and/or data service per satellite transponder;

d) that the very nature of digital transmissions, and the recent significant advancements in multiplexing techniques, enables the flexible and simultaneous transmission of a wide variety of services, digitally coded and systematically integrated, within any single satellite transponder using such multi-service satellite broadcasting techniques;

e) that video, audio, still-pictures, teletext, facsimile, and a variety of useful data services, including software distribution or interactive multimedia services, can be included in these type of broadcasts;

f) that the availability requirements of these different services can vary according to their application;

g) that broadcasting multimedia services will be widely introduced in the future,

h) that the multiplexing of these services can be referred to as, *inter alia*, Integrated Services Digital Broadcasting, or ISDB;

j) that broadcasting-satellite channels provide an effective means for transmitting integrated digital broadcasting services;

k) that the transmission of multiple video, audio or data services per transponder reduces programme costs per channel, facilitates the increase in number of services, and provides a more attractive overall service;

l) that technological developments of large-scale integrated circuits, digital information processing techniques, and bit-rate reduction techniques, especially for video and sound signals, facilitate the economical implementation of multi-service satellite broadcasting systems to provide improved broadcast services to the public;

m) that multi-service satellite broadcasting systems are also used to serve professional cable and SMATV installations for further terrestrial distribution, and that a high degree of harmonization between digitally-coded signals used for satellite broadcasting and for radiocommunication services may offer further advantages,

decides that the following Questions should be studied

1 What are suitable and/or optimal modulation and channel coding techniques for multi-service satellite broadcasting, what are practical channel transmission rates (capacity), and what performance is achievable (e.g. BER as a function of *C*/*N* and *C*/*I*)?

2 What are appropriate availability performance requirements and bit error rate requirements for the transmission of these multi-service satellite broadcasting systems?

3 What are appropriate error-correction coding and/or error-concealment processes that optimize quality, bandwidth and cost considerations?

4 What protection ratios are required between two digital signals and between a digital signal and other types of signals likely to be transmitted in the band allocated to the broadcasting-satellite service?

5 What type of multiplexing structure is optimal for the flexible transport of multiple services in the satellite transponder? What type of multiplexing structure is optimal for the flexible transmission of different types of services?

6 What are the optimum satellite system parameters, such as digital transmission bit rate (and associated channel coding, error-correction rate), to match the current performance of cable networks and SMATV installations?

NOTE 1 – See Report ITU-R BO.2008 and Recommendations ITU-R BO.1408 and ITU-R BO.1516,

further decides

1 that the results of the above studies should be included in appropriate Reports and/or Recommendations.

2 that the above studies should be completed by 2011.

Category: S1

Annex 12

QUESTION ITU-R 245-1/4*

Out-of-band and spurious emission limits

(2009)

The ITU Radiocommunication Assembly,

considering

a) that Study Group 1 has undertaken this review and has sought the advice of Study Group 4 as to the appropriateness of spurious emission levels for space services;

b) that Study Group 4 believes additional information is needed to further study the spurious emission limits that apply to space services;

c) that additional information is required such as the practical spurious emission levels that can be achieved by space services in the various frequency bands and the global locations where protection of the radio astronomy service is required,

decides that the following Questions should be studied

1 What are the practical spurious emission levels that can be achieved by the fixed-satellite service (FSS), the broadcasting-satellite service (BSS), the mobile-satellite service (MSS) and the radiodetermination-satellite service (RDSS) in its various frequency bands?

2 What are appropriate sharing and coordination techniques that can be used to mitigate problems which arise between other radio services and the FSS, BSS, MSS and RDSS?

NOTE 1 – See Recommendation ITU-R SM.329,

further decides

1 that the results of these studies should lead to the formulation of appropriate Reports and/or Recommendations by 2011.

Category: S1

* This Question should be brought to the attention of Radiocommunication Study Group 1.

Annex 13

Suppressed ITU-R Questions

Question ITU-R	Title
55-2/4	Feeder links in the fixed-satellite service used for the connections to and from geostationary satellites in various mobile-satellite services
68-1/4	Frequency sharing of the fixed-satellite service and the inter-satellite service with other space radio services under provisions of No. 9.21 of the Radio Regulations
81-1/4	Frequency sharing among networks in the fixed-satellite service, the mobile-satellite service and those of satellites equipped to operate in more than one service in the 20-50 GHz band
206-3/4	Sharing between non-geostationary satellite feeder links in the fixed-satellite service used by the mobile-satellite service and other space services, and networks of the fixed-satellite service using geostationary satellites
223/4	Interference criteria for short-term interference events into the fixed-satellite service networks
232/4	Use of regenerative processing in fixed-satellite service allocations
239/4	Sharing criteria between systems utilizing inter-satellite links
246/4	Sharing between the inter-satellite service, Earth-exploration satellite (passive) service and other services in frequency bands above 50 GHz
247/4	Design objectives for radiation patterns applicable to non-geostationary-satellite orbit/mobile-satellite service feeder link earth stations operating in the 5/7 GHz band
252/4	Criteria for the protection of Appendix 30B Plan against interference from non-geostationary satellite orbit systems
256/4	Criteria and methodologies for sharing between the fixed-satellite service and other services with allocations in the band 40.5-42.5 GHz
259/4	Earth station off-axis e.i.r.p. density levels in the bands above 14.5 GHz allocated to the fixed-satellite service
269/4	Spectrum requirements and technical and operational characteristics of user terminals (VSAT) for global broadband satellite systems
70/6	Frequency sharing for the feeder links to a broadcasting satellite (sound and television)
74/6	Radiation of unwanted emissions from space stations in the broadcasting-satellite service (sound and television)
75/6	Telemetry, tracking and command signals and test signals for maintenance testing of the radio-frequency characteristics of broadcasting satellite

Question ITU-R	Title
83/6	Characteristics of systems in the broadcasting-satellite service (sound and television) for reception by transportable and fixed receivers
84/6	Protection ratios for interference studies and system planning in the broadcasting-satellite service (sound and television)
85/6	Simultaneous transmissions of TV programmes on BSS and FSS services from a multiservice space station
94/6	Access to orbit and spectrum resources for the broadcasting-satellite service and the fixed-satellite service “direct-to-home” applications
90/8	Technical and operating characteristics of systems providing radiocommunication using satellite techniques for distress and safety operations
218/8	Essential technical requirements of mobile earth stations for global and regional geostationary mobile-satellite service systems in the band 1-3 GHz
228-1/8	Future submission of satellite radio transmission technologies for International Mobile Telecommunications-2000
239-1/8	Methodology for the coordination of radionavigation-satellite service systems and networks
85-1/8	Availability of circuits in mobile-satellite services
112/8	Performance objectives for digital mobile-satellite services
235/4	Use of operational facilities to meet power-flux-density limitation under Article 21 of the Radio Regulations
76/6	Satellite broadcasting of high-definition television
73-1/6	Receiving Earth station antennas for the broadcasting-satellite service
72/6	Digital techniques in the broadcasting-satellite service (sound and television)
57/6	Frequency sharing issues related to the introduction of the broadcasting-satellite service (sound) in the frequency range 1-3 GHz
71/6	Sharing studies between high-definition television in the broadcasting-satellite service and other services
61/6	Spectrum management issues related to the introduction of the broadcasting satellite service (sound) in the frequency range 1-3 GHz
3/6	Digital broadcasting of multiple services and programmes in the broadcasting-satellite service