INTERNATIONAL TELECOMMUNICATION UNION

Radiocommunication Bureau
(Direct Fax N°. +41 22 730 57 85)

Administrative Circular
CACE/568

30 March 2012

To Administrations of Member States of the ITU, Radiocommunication Sector Members, ITU-R Associates participating in the work of the Radiocommunication Study Group 5 and ITU-R Academia

Subject: **Radiocommunication Study Group 5 (Terrestrial services)**

– **Approval of 2 new ITU-R Questions and 14 revised ITU-R Questions**

– **Suppression of 11 ITU-R Questions**

By Administrative Circular CAR/332 of 19 December 2011, 2 draft new ITU-R Questions and 14 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 11 ITU-R Questions.

The conditions governing this procedure were met on 19 March 2012.

The texts of the approved Questions are attached for your reference (Annexes 1 to 16) and will be published in Revision 1 to Document 5/1 which contains the ITU-R Questions approved by the 2012 Radiocommunication Assembly and assigned to Radiocommunication Study Group 5. The suppressed ITU-R Questions are indicated in Annex 17.

François Rancy
Director, Radiocommunication Bureau

Annexes: 17

Distribution:

- Administrations of Member States and Radiocommunication Sector Members participating in the work of Radiocommunication Study Group 5
- ITU-R Associates participating in the work of Radiocommunication Study Group 5
- ITU-R Academia
- 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 252/5*

Frequency sharing and compatibility between systems in the fixed service and systems in other services

(2012)

The ITU Radiocommunication Assembly,

considering

a) that systems in the fixed service (FS) are widely employed throughout the world and make extensive and increasing use of a number of frequency bands;

b) that the above frequency bands are often shared between the FS and other services on a co-primary basis;

c) that the above frequency bands are sometimes made accessible to other not co-primary services or radio applications on a "no interference no protection" basis;

d) that in case of b) and c) above there is potential for interference between systems in the FS and systems in other services;

e) that in certain situations it may be necessary to study possible effects of unwanted emissions to and from other services operating in different bands,

decides that the following Questions should be studied

1 Depending on technical/operational requirements of other co-primary services operating in the same bands, what levels of interference are acceptable to systems in the FS, including, if relevant, percentage of time considerations?

2 What levels of interference from other not co-primary services or radio applications operating in the same bands are acceptable to systems in the FS, including, if relevant, percentage of time considerations?

3 What levels of interference from unwanted emissions from other service systems operating in adjacent bands are acceptable to systems in the FS, including, if relevant, percentage of time considerations?

further decides

1 that the results of the above studies should be included in one or more Recommendation(s) or Report(s);

2 that the above studies should be completed by 2015.

Category: S1

---

* This Question should be brought to the attention of Radiocommunication Study Groups 1, 4, 6 and 7.

Annex 2

QUESTION ITU-R 253/5

Fixed service use and future trends

(2012)

The ITU Radiocommunication Assembly,

considering

a) that the fixed service has evolved over the years and there is continuing evolution both in terms of the technology and applications including the use of high capacity fixed wireless systems;

b) that this evolution in fixed service technology and requirements is leading towards changes in network architectures, capacity and bandwidth requirements;

c) that exploitation of the higher frequency bands, e.g. higher millimetre wave bands, is important as one of the measures to address these new changing requirements;

d) that these changes may require further spectrum management and regulatory considerations in order to address these new requirements;

e) that there is a requirement for up to date guidance and information on the medium and long term spectrum vision, including key drivers and trends in the fixed service;

f) that such guidance would greatly assist administrations, manufacturers and telecom operators in a range of spectrum management discussions;

g) that the exponential growth in mobile broadband traffic is placing increasing demand on the fixed service backhaul infrastructure;

h) that backhaul and relay links for nomadic wireless access systems can be provided by a variety of technologies,

decides that the following Question should be studied

What are the key trends and drivers of technologies and applications for the fixed service across the different FS bands over the 2013-2023 period and beyond, taking into account:

- deployment scenarios, propagation considerations, technology developments, capacity and spectrum requirements;
- the use of the higher millimetre wave frequency bands (e.g. above 60 GHz);
- the technical and operational requirements for fixed wireless systems operating in the higher millimetre wave bands, including high capacity, e.g. Gigabit-class, links?

further decides

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

2 that initial results of the above studies should be completed by 2015.

Category: S2

Annex 3

QUESTION ITU-R 1-5/5*

Interference protection ratios and minimum field strengths required in the land mobile services

(1963-1986-1992-1998-2007-2012)

The ITU Radiocommunication Assembly,

considering

a) that for certain kinds of mobile service (MS) systems, partial data relating to interference protection ratios and minimum field strengths required, exist in documents of some ITU Conferences and some ITU-R Recommendations (Note 1), and certain ITU-R Reports (Note 2), *et al.*;

b) that such documents, however, do not constitute a complete and consistent set of data relating to protection of the desired transmission signal quality from interference of all kinds from services operating in all frequency ranges, particularly with respect to VHF band and UHF band MS systems, nor do they assure proper and consistent use in predicting interference signal levels in MS systems;

c) that consistent methods are needed for various types of information transmission to assure consistent use of parameters and their values for determining system interference protection criteria;

d) that consistent methods are needed as well for calculating interference due to unwanted emissions to assure protection of the desired signal quality in the necessary bandwidth of a MS system;

e) that the Radiocommunication Bureau (BR) has requested guidance from Radiocommunication Study Groups on the methods to be employed for the calculation of the interference from the mobile-satellite service (MSS), to the MS, and on the criteria to be used;

f) that consistent methods are needed as well for calculating interference due to spectrum sharing with other services such as MSS or fixed service to assure protection of the desired signal quality in the necessary bandwidth of a MS system;

g) that interference prediction parameters and computational methods are also under study in other Radiocommunication Study Groups, in other telecommunications standards organizations, and in frequency coordination organizations,

---

* This Question should be brought to the attention of Radiocommunication Study Groups 1, 4, 6 and 7.

decides that the following Questions should be studied

1 What are the signal-to-interference protection ratios which define the threshold of harmful interference for mobile services?

2 What are the signal-to-noise ratios and the minimum field strengths required for satisfactory reception of the different classes of emission in the mobile services?

3 What are the appropriate fading allowances in the mobile services?

4 Which combinations of interfering and victim carrier types are covered by ITU-R texts on interference calculation methods?

5 Which combinations of interfering and victim carriers are not currently covered by ITU-R texts describing interference criteria and/or calculation methods, and what criteria and calculation methods are appropriate for such combinations?

6 What guidance could be given on circumstances in which the probability of harmful interference between carriers can be considered to be negligible?

further decides

1 that the above studies should be continued simultaneously and with the same urgency;

2 that particular attention should be given to those studies which will assist the further refinement of the technical characteristics of land mobile systems;

3 that the above studies should address not only intra-service interference, but also inter-service sharing interference with other services such as the MSS;

4 that the results of the above studies should be included in one or more Recommendations, Reports or Handbooks;

5 that the above studies should be completed by 2015.

NOTE 1 – See Recommendations ITU-R M.441, ITU-R M.478, ITU-R SM.331 and ITU-R SM.852.

NOTE 2 – See Reports ITU-R M.739 and ITU-R M.914.

Category: S2

Annex 4

QUESTION ITU-R 7-7/5*

Characteristics of equipment for the land mobile service between 30 and 6 000 MHz

(1956-1966-1970-1974-1990-1992-1997-2007-2012)

The ITU Radiocommunication Assembly,

considering

a) that there is a necessity for efficient use of the frequency bands allocated to the land mobile service;

b) that an interchange of information on the requirements of administrations concerning the technical characteristics of equipment used in land mobile services between 30 and 6 000 MHz, would be advantageous in the development of those services;

c) that an exchange of information among different countries concerning the practices applied to the assignment of channels and the experience gained in the operation of land mobile services between 30 and 6 000 MHz is of value in general;

d) that a certain measure of agreement may be desirable on the characteristics of the land mobile equipment that are used in the border areas of neighbouring countries to minimize mutual interference;

e) that a certain measure of agreement may also be desirable on the practices governing the allocation and use of channels in land mobile services between 30 and 6 000 MHz in border areas;

f) that a degree of standardization is desirable, since the land mobile service connected to the national network may form part of an international connection;

g) that it is desirable to determine equipment technical characteristics, to facilitate the planning of channel allocation in the land mobile bands;

h) that it is also desirable to investigate the relationship between subjective measurement techniques and objective measurement techniques for the various systems operating in the land mobile service,

decides that the following Questions should be studied

1 What are the technical requirements of administrations concerning equipment used in land mobile services between 30 and 6 000 MHz that are of international importance in the development of such services, e.g. transmitter power, antenna characteristics, emission characteristics, frequency tolerance?

---

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

2 To what extent would it be desirable to standardize the performance characteristics of land mobile equipment between 30 and 6 000 MHz internationally?

3 What are the equipment characteristics (and/or methods of measurement) for the various land mobile services between 30 and 6 000 MHz?

further decides

1 that the results of the above studies should be included in one or more Recommendations, Reports or Handbooks;

2 that the above studies should be completed by 2015.

Category: S2

Annex 5

QUESTION ITU-R 37-6/5

Digital land mobile systems for specific applications

(1978-1982-1992-1995-1997-2007-2012)

The ITU Radiocommunication Assembly,

considering

a) that the number of radio stations in the land mobile service is increasing very rapidly;

b) that in several geographical areas the growing demand for radio channels in the land mobile service has resulted in a serious congestion in the frequency bands allocated to this service;

c) that in order to alleviate this congestion as well as that expected in the future, it is desirable for land mobile services to employ spectrum saving techniques;

d) that improved spectrum efficiency might be achieved, taking into account essential system characteristics like traffic density, grade of service, etc. and costs:

– by making an increased number of traffic channels available within a given bandwidth;

– by optimizing the size of base station coverage areas, to the traffic demand;

– by combining these techniques and others;

e) that the digital technology applied in such systems may require channel widths other than those used in the existing land mobile services;

f) that systems based on digital technology offer a high degree of privacy and security;

g) that these systems may provide capabilities required by specific user groups, of applications such as, private mobile radio, public access mobile radio, utilities, e-Health, public protection and disaster relief, and machine to machine communications, etc.; *h)* that, particularly for systems operating in border areas of neighbouring countries, it is desirable to reach international agreement on certain system characteristics in order to come to maximum usage flexibility,

decides that the following Questions should be studied

1 What are, with regard to frequency efficiency, the optimum characteristics of these systems, taking into account factors like needed system capacity to serve a large number of users, base station coverage area, complexity of equipment, propagation factors and performance objectives?

2 How can these systems meet the user demand and what are the operational requirements?

3 What are the capabilities and facilities offered by these systems, which fulfil the requirements of specific user groups, of applications such as private mobile radio, public access mobile radio, utilities, e-Health, public protection and disaster relief, and machine to machine communications, etc.?

4 What are the system parameters on which international agreement is desirable to ensure compatibility between systems and/or operation of differing systems in neighbouring coverage areas?

further decides

1 that the results of the above studies should be included in one or more Recommendations, Reports or Handbooks;

2 that the above studies should be completed by 2015.

Category: S2

Annex 6

QUESTION ITU-R 110-3/5

Reference radiation patterns of point-to-point fixed wireless system antennas for use in sharing studies

(1990-2003-2008-2012)

The ITU Radiocommunication Assembly,

considering

a) that determination of criteria for frequency sharing between point-to-point fixed wireless systems and systems in the space radiocommunication services requires a knowledge of the antenna gains of the point-to-point fixed wireless stations along all possible interfering paths;

b) that the use of reference radiation patterns for point-to-point fixed wireless system antennas would facilitate interference calculations;

c) that different reference radiation patterns may be required for the various types of antennas in use,

decides that the following Questions should be studied

1 What are the measured radiation patterns in the vertical and horizontal planes for both polarizations of typical antennas used in point-to-point fixed wireless systems?

2 What reference radiation patterns can be defined for use in sharing studies for the different types of antennas?

further decides

1 that the results of the above studies should be included in one or more Recommendation(s) or Report(s);

2 that the above studies should be completed by 2015.

NOTE – See Recommendations ITU-R F.699 and ITU-R F.1245.

Category: S2

Annex 7

QUESTION ITU-R 205-5/5

Intelligent transport systems

(1995-1996-2002-2003-2007-2012)

The ITU Radiocommunication Assembly,

considering

a) that there is a need to integrate new technologies including radiocommunications into land transportation systems;

b) that many new land transportation systems use intelligence in the land vehicles coupled with advanced management techniques to improve traffic management;

c) that the technologies planned for intelligent transport systems (ITS) can be applied to public transportation (transit) systems to make them more efficient and to enhance the integrated use of all forms of surface transport;

d) that ITS are being planned and implemented in various Regions by Administrations;

e) that a wide variety of applications and services, including automatic vehicle location (AVL), are defined;

f) that international standards would facilitate the world-wide applications of ITS and provide for economies of scale in bringing ITS equipment and services to the public;

g) that early international harmonization of ITS would have several benefits;

h) that world-wide compatibility of ITS may be dependent on common radio spectrum allocations;

j) that radio is an essential component of ITS;

k) that the International Organization for Standardization (ISO) is standardizing ITS (non-radio aspects) in ISO/TC204;

l) that the ITU Radiocommunication Assembly has approved Recommendation ITU-R M.1453 “Intelligent transport systems – Dedicated short range communications at 5.8 GHz”,

decides that the following Questions should be studied

1 What are the various elements of ITS?

2 What are the overall objectives for ITS with respect to:

– radiocommunication requirements: radio interfaces, reliability, grade of service, etc.;

– improvement factors; congestion reduction, safety, control, quality of life, etc.;

– type of services?

3 What radio-based ITS services and functions might benefit from international standardization?

4 What are the spectrum requirements for each element of ITS including:

– suitable bands;

– spectrum bandwidth needed?

5 What are the interconnect requirements of ITS with the switched telecommunication networks?

6 What are the technical factors that affect sharing between ITS and other users?

7 To what extent can the evolving mobile telecommunications systems be used to deliver ITS services?

8 What are the radiocommunication requirements and technical specifications necessary for the global or regional harmonization of next generation ITS radiocommunications?

9 What is the definition of "telematics" in the context of ITS? In such a context, what are the systems and application requirements of telematics? What are the land mobile communications requirements of telematics?

10 What are the technical and operational characteristics of AVL in the land mobile service?

further decides

1 that the results of the above studies should be included in one or more Recommendations, Reports or Handbooks;

2 that the above studies should be completed by 2015.

Category: S2

Annex 8

QUESTION ITU-R 209-4/5*

Use of the mobile, amateur and amateur satellite services in support of disaster radiocommunications

(1995-1998-2006-2007-2012)

The ITU Radiocommunication Assembly,

considering

a) Resolution 36 (Rev.Guadalajara, 2010) and Resolution 136 (Rev.Guadalajara , 2010);

b) Resolution 43 (Rev.Hyderabad, 2010), which instructs the Director BDT, in close collaboration with the Director BR, to continue encouraging and assisting developing countries to implement IMT, to provide assistance to administrations on the use and interpretation of ITU Recommendations relating to IMT;

c) Resolution 644 (Rev.WRC-07) on radiocommunication resources for early warning, disaster mitigation and relief operations and Resolution 647 (WRC-07) on spectrum management guidelines for emergency and disaster relief radiocommunication;

d) that the Tampere Convention on the provision of telecommunication resources for disaster mitigation and relief operations by the Intergovernmental Conference on Emergency Telecommunications (ICET-98) came into force on 8 January 2005,

recognizing

a) that when a disaster occurs, the disaster relief agencies are usually the first on the scene using their day-to-day communication systems, but that in most cases, other agencies and organizations may also be involved;

b) that in times of disasters, if most terrestrial-based networks are destroyed or impaired, other networks in the amateur and amateur-satellite services may be available to provide basic, on-site communications capability;

c) that important attributes of the amateur services include stations distributed throughout the world which have trained radio operators capable of reconfiguring networks to meet the specific needs of an emergency,

* This Question should be brought to the attention of Radiocommunication Study Group 4 (Question ITU-R 286/4). The results of these studies should be brought to the attention of ITU-T Study Groups 2, 13 and 17 and ITU-D Study Group 2.

decides that the following Questions should be studied

1 What are the technical, operational and related procedural aspects of mobile, amateur and amateur-satellite services in support and improvements of disaster warning, mitigation and relief operations?

2 What information relating to the above should be reported to a future competent World Radiocommunication Conference?

further decides

1 that the results of the above studies should be included in one or more Recommendations, Reports or Handbooks;

2 that the above studies should be completed by 2015;

3 that the above studies should be coordinated with the other two Sectors.

Category: S2

Annex 9

QUESTION ITU-R 212-4/5*

Nomadic wireless access systems including radio local area networks

(1995-1998-2000-2007-2012)

The ITU Radiocommunication Assembly,

considering

a) that there is a need to provide effective communication for moveable, portable and mobile computer based equipment not only within the workplace but also in many public spaces;

b) that ITU-R has defined nomadic wireless access in Recommendation ITU-R F.1399 on vocabulary of terms for wireless access;

c) that it is desirable to identify operational and technical characteristics for nomadic wireless access (NWA) systems including radio local area networks (RLAN) applications;

d) that NWA systems including RLANs use frequency allocations designated for fixed and/or mobile services dependant on the application;

e) that there are RLANs currently in operation and also in development for operation in various frequency bands (e.g. the frequency bands used for ISM applications);

f) that in the broadband wired networks basic signal transfer methods based on and internet protocol (IP) are in use;

g) that the IP-based LAN using the high clock frequency may impact the design of NWA systems including RLANs as well as utilization of the radio-frequency spectrum;

h) that there is a need to identify appropriate frequency bands for NWA systems;

j) that technical constraints on NWA systems including RLANs may be needed to facilitate sharing with other services;

k) that the standardization works of NWA systems including RLANs concerning architecture, technical features and spectrum needs are being studied by regional standardization bodies,

decides that the following Questions should be studied

1 What are the operational and technical requirements of NWA systems?

2 What specifications may be recommended for NWA systems?

---

* This Question should be brought to the attention of Radiocommunication Study Groups 1, 4 and 7, and to the Telecommunication Standardization Sector.

3 What are the relationships of NWA systems including those based on IP with other radio systems to provide for multiple system operation?

4 What types of system techniques, including multi-hop relay stations, provide for reliable area coverage for NWA applications?

5 What are the frequency sharing or compatibility criteria between NWA systems including RLANs and other radio services?

6 What frequency bands are suitable for operation of NWA systems including RLANs considering the required operational and technical characteristics, and sharing compatibility with other services?

7 What amount of frequency spectrum is needed for NWA systems in particular for broadband applications higher than 10 Mbit/s ensuring wireless access from public spaces?

further decides

1 that the results of the above studies should be included in one or more Recommendations, Reports, or Handbooks;

2 the above studies should be completed by 2015.

Category: S2

Annex 10

QUESTION ITU-R 215-4/5

Frequency bands, technical characteristics, and operational requirements for fixed wireless access* systems in the fixed and/or land mobile services

(1997-2000-2007-2009-2012)

The ITU Radiocommunication Assembly,

considering

a) the potential of wireless access to enhance the availability of basic communication services in many countries, particularly developing countries;

b) that there is a need for efficient use of the radio-frequency spectrum;

c) that wireless access has potential for greater economic and socio-economic benefits than other access media to telecommunication networks (e.g., PSTN, ISDN);

d) that wireless access technologies allow fast and economic deployment of telecommunication facilities;

e) that enhanced competition in the provision of services is desirable;

f) that fixed wireless access systems may be implemented in frequency bands used by both the fixed and mobile services;

g) that a number of ITU-R Recommendations exist on various aspects of fixed wireless access, for example Recommendations ITU-R F.755, ITU-R F.757, ITU-R F.1399, ITU-R F.1400, ITU-R F.1401, ITU-R F.1490, ITU-R F.1499, ITU-R F.1402, ITU-R M.687, ITU-R M.819, ITU-R M.1033, ITU-R M.1073, and ITU-R M.1801 as well as a Handbook on Land Mobile (including Wireless Access);

h) that different wireless access technologies are suitable for different environments;

j) that the ongoing studies of IMT in the ITU have highlighted fixed wireless access as an important application;

k) that the availability and possible adaptation of mobile technologies for fixed wireless access applications may be advantageous;

l) that spectrum sharing between fixed and mobile wireless access applications may improve the spectrum utilization;

m) that there is a need to consider:

– both fixed and mobile wireless access services in conjunction with each other; and

– the cost-benefits of integration of both types of services;

---

* "Fixed wireless access" is defined in Recommendation ITU-R F.1399.

n) that different fixed wireless access environments may require different frequency bands;

o) that broadband wireless access, including wireless access to Internet Protocol (IP) core networks is a category of fixed wireless access that is becoming important,

decides that the following Questions should be studied

1 What are the frequency bands suitable for fixed wireless access systems within the terrestrial fixed and/or mobile frequency allocations?

2 What are the frequency bands that might allow compatible operation between wireless access systems and systems of existing radio services within the terrestrial fixed and/or mobile frequency allocations?

3 What are the characteristics and operational requirements of fixed wireless access systems?

4 What are the overall RF and IF bandwidth requirements for fixed wireless access systems within the terrestrial fixed and/or mobile frequency allocations?

5 What are the spectrum sharing criteria for:

– wireless access systems and systems supporting other radio services?

– wireless access systems using different technologies?

6 What are the technologies suitable for wireless access?

7 What techniques need to be considered for fixed wireless access operation to enhance spectrum sharing?

8 What are the interface requirements between wireless access systems and the switched network (e.g., PSTN, ISDN)?

9 What additional vocabulary should be used with fixed wireless access systems?

further decides

1 that the results of the above studies should be included in one or more Recommendations, Reports or Handbooks;

2 that the above studies should be completed by 2015.

Category: S2

Annex 11

QUESTION ITU-R 230-3/5

Software-defined radios

(2000-2003-2007-2012)

The ITU Radiocommunication Assembly,

considering

a) that considerable research and development has been done on software-defined radio (SDR) design;

b) that SDRs may offer design and operational versatility and flexibility in mobile radio systems;

c) that SDRs may facilitate spectrum efficiencies in complex mobile radio configurations;

d) that SDRs offer intersystem interoperability in disaster and emergency situations;

e) that SDRs may facilitate the regional and global harmonization of wireless communications;

f) that SDRs may provide for improve manufacturing economies of scale;

g) that SDR design can provide users with more operational features;

h) that Report ITU-R SM.2152 contains the ITU-R definition for SDR;

j) that Recommendations on SDR design would be complementary to other ITU-R Recommendations on mobile telecommunications,

decides that the following Questions should be studied

1 What are the key technical characteristics that are associated with the design and application of SDR?

2 What frequency band considerations are important to the application of SDR?

3 What special interference considerations may be required in SDR applications?

4 What are the operational implications of SDR to mobile radio systems?

5 What technical considerations are necessary to insure conformance with ITU Recommendations and Radio Regulations?

further decides

1 that the results of the above studies should be included in one or more Recommendations, Reports, or Handbooks;

2 that the above studies should be completed by the year 2015.

Category: S2

Annex 12

QUESTION ITU-R 238-2/5*, **

Mobile broadband wireless access systems

(2006-2007-2012)

The ITU Radiocommunication Assembly,

considering

a) that there is a need to provide broadband wireless access (BWA) in a variety of environments;

b) that it is desirable to recommend radio interface standards for mobile broadband wireless access systems;

c) that it is desirable to identify the technical and operational requirements for mobile broadband wireless access systems;

d) that in today's radiocommunications, mobile "broadband" services provide similar capabilities and experience, with the added benefit of mobility, as is available from widely-deployed wireline networks, such as cable modems and higher speed DSL, in particular when receiving and transmitting multiple media applications;

e) that there are mobile and fixed systems currently in operation and also in development that provide broadband wireless access in various frequency bands;

f) that information transfer methods based on internet protocol (IP) are being used in broadband infrastructure;

g) that standardization bodies are addressing the architecture and technical features of broadband wireless access systems,

noting

a) that studies on BWA are also performed in the context of IMT systems (see Question ITU-R 229/5);

b) that studies on fixed BWA and nomadic BWA are performed under the scope of Questions ITU-R 215/5 and ITU-R 212/5, respectively,

decides that the following Questions should be studied

1 What are the technical and operational requirements for mobile broadband wireless access systems in the mobile service?

2 What are the applicable radio interface standards for mobile broadband wireless access systems in the mobile service?

---

* Broadband wireless access is defined in Recommendation ITU-R F.1399.

** This Question should be brought to the attention of ITU-D Study Group 2.

3 What are the applicable antenna systems suitable for mobile broadband wireless access systems in the mobile service?

4 What are the frequency sharing and/or compatibility criteria associated with BWA systems operating in the mobile service?

further decides

1 that the results of the above studies should be included in one or more Recommendations, Reports, or Handbooks;

2 the above studies should be completed by 2015.

Category: S2

Annex 13

QUESTION ITU-R 241-2/5

Cognitive radio systems in the mobile service

(2007-2007-2012)

The ITU Radiocommunication Assembly,

considering

a) that the use of mobile radio systems is growing at a rapid rate globally;

b) that more efficient use of spectrum is essential to the continued growth of such systems;

c) that cognitive radio systems (CRSs) may facilitate the more efficient use of spectrum in mobile radio systems;

d) that cognitive radio systems may offer functional and operational versatility and flexibility in mobile radio systems;

e) that considerable research and development is being carried out on cognitive radio systems and related radio technologies;

f) that it is beneficial to identify the technical and operational characteristics of a CRS;

g) that Report ITU-R SM.2152 contains the ITU-R definition for a CRS;

h) that ITU-R Reports and/or Recommendations on cognitive radio systems would be complementary to other ITU-R Recommendations on mobile radio systems,

noting

that there are network aspects related to the control of cognitive radio systems,

recognizing

that any radio system implementing CRS technology within any radiocommunication service shall operate in accordance with the provisions of the Radio Regulations applicable for that specific service in the related frequency band,

decides that the following Questions should be studied

1 What are the closely related radio technologies (e.g. smart radio, reconfigurable radio, policy-defined adaptive radio and their associated control mechanisms) and their functionalities that may be a part of cognitive radio systems?

2 What key technical characteristics, requirements, performance improvements and/or other benefits are associated with the implementation of cognitive radio systems?

3 What are the potential applications of cognitive radio systems and their impact on spectrum management?

4 How can cognitive radio systems promote the efficient use of radio resources?

5 What are the operational implications (including privacy and authentication) of cognitive radio systems?

6 What are the cognitive capabilities and CRS technologies that could facilitate sharing between the mobile service and other services, such as broadcasting, mobile-satellite or fixed, as well as passive services, space services (space-to-Earth) and safety services, taking into account the specificity of all these services?

7 What are the cognitive capabilities and CRS technologies that could facilitate coexistence of the systems in the mobile service?

8 What factors need to be considered for the introduction of CRS technologies in the land mobile service?

further decides

1 that the results of the above studies should be included in one or more Recommendations, Reports or Handbooks;

2 that the above studies should be completed by the year 2015.

Category: S2

Annex 14

QUESTION ITU-R 242-1/5

Reference radiation patterns of omnidirectional and sectoral antennas in point-to-multipoint fixed wireless systems for use in sharing studies

(1995-2000-2012)

The ITU Radiocommunication Assembly,

considering

a) that determination of criteria for frequency sharing between point-to-multipoint systems in the fixed service and systems in other services requires a knowledge of radiation patterns of omnidirectional and sectoral antennas along all possible interfering paths;

b) that the use of reference radiation patterns for omnidirectional and sectoral antennas would facilitate interference calculations;

c) that different reference radiation patterns may be required for the various types of antennas in use,

decides that the following Questions should be studied

1 What are the measured radiation patterns in the vertical and horizontal planes for both polarizations of typical omnidirectional and sectoral antennas used in point-to-multipoint systems?

2 What reference radiation patterns can be defined for use in sharing studies for the different types of antennas?

further decides

1 that the results of the above studies should be included in one or more Recommendation(s) or Report(s);

2 that the above studies should be completed by 2015.

NOTE – See Recommendation ITU-R F.1336.

Category: S2

Annex 15

QUESTION ITU-R 247-1/5

Radio-frequency arrangements for fixed wireless systems

(2008-2012)

The ITU Radiocommunication Assembly,

considering

a) that radio-frequency (RF) channel or frequency block-based arrangements for certain fixed service applications may need to be optimized within the available band;

b) that administrations may wish to utilize flexible RF arrangements for fixed wireless systems (FWS) including frequency block-based arrangements;

c) that studies on preferred RF channel or frequency block-based arrangements could contribute to efficient deployment of FWS or facilitate frequency compatibility between such systems and other radio services,

decides that the following Question should be studied

What are the preferred radio-frequency channel or frequency block-based arrangements for fixed wireless systems operating in various frequency bands?

further decides

1 that the results of the above studies should be included in one or more Recommendation(s) or Report(s);

2 that the results of the above studies should be prepared by 2015.

NOTE – See Recommendations ITU-R F.382, ITU-R F.383, ITU-R F.384, ITU-R F.385, ITU-R F.386, ITU-R F.387, ITU-R F.497, ITU-R F.595, ITU-R F.635, ITU-R F.636, ITU-R F.637, ITU-R F.701, ITU-R F.746, ITU-R F.747, ITU-R F.748, ITU-R F.749, ITU-R F.1098, ITU-R F.1099, ITU-R F.1242, ITU-R F.1243, ITU-R F.1496, ITU-R F.1497, ITU-R F.1519, ITU-R F.1520, ITU-R F.1567 and ITU-R F.1568.

Category: S2

Annex 16

QUESTION ITU-R 250-1/5

Mobile wireless access systems providing telecommunications for a large number of ubiquitous sensors and/or actuators scattered over wide areas as well as machine to machine communications in the land mobile service

(2009-2012)

The ITU Radiocommunication Assembly,

considering

a) that rapid advances are being made in wireless telecommunications to link sensors and/or actuators in various environments;

b) that sensors and/or actuators for wireless telecommunications should be simple, small, inexpensive and have low power consumption to realize the ubiquitous network society;

c) that there are emerging applications that handle small amounts of data, such as measurement data, location information and object control signals;

d) that the application of wireless sensor and/or actuator telecommunications as well as machine to machine communications may provide service to a large coverage area and a large variety of objects on a cell-by-cell basis due to the traffic characteristics of such applications stated in item c) above;

e) that mobility should be offered for wireless sensor and/or actuator telecommunications as well as machine to machine communications;

f) that wireless sensor and/or actuator telecommunications as well as machine to machine communications can take place in non-line-of-sight conditions;

g) that it is desirable to identify the typical characteristics for the mobile wireless access systems used for sensor and/or actuator telecommunications as well as machine to machine communications in the land mobile service;

h) that wireless access systems used for sensor and/or actuator telecommunications as well as machine to machine communications may also be used in nomadic and/or fixed applications,

decides that the following Questions should be studied

1 What are the technical and operational characteristics of land mobile wireless access systems that will be used to provide telecommunications to large numbers of sensors and/or actuators scattered over wide areas?

2 What are the technical and operational characteristics of land mobile wireless access systems that will be used to provide machine to machine communications?

further decides

1 that the results of the above studies should be included in one or more Recommendations, Reports or Handbooks;

2 that the above studies should be completed by 2015.

Category: S2

Annex 17

Suppressed ITU-R Questions

Question ITU-R	Title
99-1/5	Interference due to intermodulation products in the land mobile services between 25 and 6 000 MHz
106-1/5	Criteria for sharing between the broadcasting-satellite service (sound) and complementary terrestrial broadcasting and the mobile and amateur services within the range 1-3 GHz
111-3/5*	Sharing criteria between the BSS (sound and television) and the fixed service
113-2/5*	Frequency sharing and compatibility between systems in the fixed service and systems in the Earth exploration-satellite service and the space research service
118-4/5*	Sharing criteria between the mobile-satellite service and the fixed service
133-1/5	Sharing criteria between the fixed and land mobile services in the frequency bands above about 0.5 GHz
145-2/5	Characteristics required for high-speed data transmission over HF radio circuit
158-1/5	Packet data transmission protocols for systems operating below about 30 MHz
208-1/5	Evolution of land mobile systems towards IMT-2000 and systems beyond IMT-2000
233/5	Criteria for sharing between stations in the fixed service and stations in the aeronautical mobile service in bands between about 37 GHz and 50 GHz
243/5	System characteristics and sharing criteria for the fixed service operating in frequency bands below 1 GHz
* These three ITU-R Questions are replaced by Question ITU-R 252/5.	