INTERNATIONAL TELECOMMUNICATION UNION

Radiocommunication Bureau
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Administrative Circular
CAR/202

4 January 2006

To Administrations of Member States of the ITU

Subject: **Radiocommunication Study Group 8**

- **Proposed approval of 2 draft new Questions and 5 draft revised Questions**

At the meeting of Radiocommunication Study Group 8 held on 21 and 22 November 2005, 2 draft new Questions and 5 draft revised Questions were adopted and it was agreed to apply the procedure of Resolution ITU-R 1-4 (see § 3.4) for approval of Questions in the interval between Radiocommunication Assemblies.

Having regard to the provisions of § 3.4 of Resolution ITU-R 1-4, you are requested to inform the Secretariat (brsgd@itu.int) by 4 April 2006, whether your Administration approves or does not approve these Questions.

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 8 (see : http://web/ITU-R/publications/download.asp?product=que08&lang=e).

Valery Timofeev
Director, Radiocommunication Bureau

Annexes: 7

– 2 draft new ITU-R Questions and 5 draft revised ITU-R Questions

Distribution:
– Administrations of Member States of the ITU
– ITU-R Associates participating in the work of Radiocommunication Study Group 8
– Radiocommunication Sector Members participating in the work of Radiocommunication Study Group 8

ANNEX 1

Source: Document 8/112

DRAFT NEW QUESTION ITU-R [8A-BWA][*, **]

Broadband wireless access systems for the mobile service

The ITU Radiocommunication Assembly,

considering

a) that there is a need to provide broadband wireless access for mobile terminals in a variety of environments;

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

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

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 systems currently in operation and also in development that provide broadband wireless access in various frequency bands;

f) that information transfer methods based on asynchronous transfer mode (ATM) and 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 operating in the mobile service,

noting

that studies on BWA are also performed in the context of IMT-2000 and systems beyond (see Q.229/8),

decides that the following Question should be studied

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

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

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[*] 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 and ITU-R Study Group 9.

3 What are the applicable antenna systems suitable for 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 2009.

Category: S2

ANNEX 2

Source: Document 8/98

DRAFT NEW QUESTION ITU-R M.[8/98]

Methodology for the coordination of radionavigation-satellite service systems and networks

The ITU Radiocommunication Assembly,

considering

a) that WRC-03 adopted Resolution 610 concerning the necessity to coordinate radionavigation-satellite service (RNSS) systems and networks;

b) that there is no agreed methodology for the coordination of RNSS systems and networks operating or planned to operate in the same band;

c) that development of a single methodology for coordination of RNSS systems and networks would facilitate the successful conduct of necessary coordination;

d) that Recommendations ITU-R M.1088, M.1317, M.1318, M.1477 and M.1479 identify protection criteria for RNSS receivers and satellites,

recognizing

a) that the RNSS systems and networks of concern are those operating or planned to operate in the bands 1 164-1 300 MHz, 1 559-1 610 MHz, and 5 010-5 030 MHz;

b) that as of January 1, 2005 such systems and networks are now subject to the provisions of No. 9.7, 9.12, 9.12A, and 9.13 as indicated in RR No. 5.328B,

decides the following Questions should be studied

1 What methodology should be used for the conduct of coordination between RNSS systems and networks operating and proposed to operate in the same RNSS allocation when there is spectrum overlap within the RNSS allocations identified in *considering* b) above; and

2 What ITU-R Recommendations should be used having characteristics and protection criteria associated with the conduct of coordination?

further decides

1 that the results of these studies should be included in the development and adoption of one or more appropriate ITU-R Recommendations;

2 that these Recommendations should be accomplished during the present cycle, and no later than 2007.

Category: S1

ANNEX 3

Source: Document 8/96

DRAFT REVISION OF QUESTION ITU-R 236/8

Characteristics and operational requirements of radionavigation-satellite service (space-to-Earth, space-to-space, Earth-to-space) systems

(2004)

The ITU Radiocommunication Assembly,

considering

a) that radionavigation-satellite service (RNSS) systems provide worldwide precision, timing, positioning and navigation information for many applications, including critical and safety of life applications;

b) that there are various existing or planned RNSS systems;

c) that the bands 149.9-150.05 MHz and 399.9-400.05 MHz are allocated worldwide on a primary basis to the RNSS effective until 1 January 2015;

d~~e~~) that the bands 1 164-1 300 MHz, 1 559-1 610 MHz and 5 010-5 030 MHz are allocated worldwide on a primary basis to the RNSS (space-to-Earth, space-to-space);

e~~d~~) that the bands 1 300-1 350 MHz, and 5 000-5 010 MHz are allocated worldwide on a primary basis to the RNSS (Earth-to-space);

f~~e~~) that these frequency bands are also allocated on a primary basis to other services;

g~~f~~) that characteristics and protection criteria for RNSS systems may differ between bands and user applications;

h~~g~~) that WRC-2000 concluded that sharing of the 1 559-1 610 MHz RNSS band by any co-frequency radiocommunication service is not recommended;

i~~h~~) that studies on the compatibility between RNSS and other services or systems are ongoing or planned;

k~~i~~) that Recommendations ITU-R M.1088, ITU-R M.1477 and ITU-R M.1479 provide characteristics and descriptions of several types of receivers that are used with several RNSS systems;

l~~k~~) that the design of RNSS systems referred to in *considering* f) has recently evolved, and that the corresponding relevant Recommendations consequently may require updating;

m~~l~~) that there is an essential need to protect RNSS systems from the interference caused by other services and systems, to the extent provided by the Radio Regulations,

decides that the following Question should be studied

What are the technical and operational characteristics of RNSS systems to be used in sharing and compatibility studies with other services or systems?

further decides

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

2 that the above studies should be completed by ~~2005~~ the end of the study period in preparation for WRC-07.

Category: S1

ANNEX 4

Source: Document 8/118

DRAFT REVISION OF QUESTION ITU-R 209-1/8*

Contributions of the mobile and amateur services and associated satellite services to the improvement of disaster communications

(1995-1998)

The ITU Radiocommunication Assembly,

considering

a) Resolution 36 (Rev.~~Minneapolis, 1998~~ Marrakesh, 2002);

b) Resolution 644 (~~WRC-97~~ Rev.WRC-2000) on telecommunication resources for disaster mitigation and relief operations;

c) ~~the adoption of~~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) ~~from 16-18 June 1998~~came into force on 8 January 2005,

decides that the following Question should be studied

1 What are the technical, operational and related ~~regulatory~~ procedural aspects of radiocommunications for disaster warning, mitigation and relief operations?

2 What improvements can be made in radiocommunications for disaster warning, mitigation and relief operations?

3 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;

2 that the above studies should be completed by 2007~~5~~.

Category: S1

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* This Question should be brought to the attention of Radiocommunication Study Groups 4 and 9. The results of these studies should be brought to the attention of ITU-D Study Group 2.

ANNEX 5

Source: Document 8/106

DRAFT REVISION OF QUESTION ITU-R 217/8*

Interference to the radionavigation-satellite service in the ICAO global navigation satellite system

(1997)

The ITU Radiocommunication Assembly,

considering

~~a) that the radionavigation-satellite service provides a navigation service relating to safety of flight when used in the aeronautical environment and that RR 4.10 recognizes that safety services require special measures to ensure freedom from harmful interference;~~

~~b~~a) that the types of radiation which can cause harmful interference can differ widely depending on the particular technical and operational characteristics of the services involved and the aircraft phase of flight (e.g., en route, approach);

~~c~~b) that GPS and GLONASS are ~~the~~ constituent elements of the International Civil Aviation Organization's (ICAO) Global Navigation Satellite System (GNSS);

c) that other planned RNSS systems such as Galileo may request to become constituent elements of the International Civil Aviation Organization's (ICAO) Global Navigation Satellite System (GNSS);

d) that the ICAO 10th Air Navigation Conference, in 1991, adopted a future Communications Navigation Surveillance (CNS) system concept largely based on satellite services, of which the GNSS is the key navigation component;

e) that standards and recommended practices (SARPs) which provide technical data for the global navigation satellite system (GNSS) operations and associated aircraft avionics equipment ~~are under development~~have been developed by ICAO;

f) that from 1998 onwards the narrow-band mode of GLONASS-M operates in the band 1 597.5515-1 609.8235 MHz. After the year 2005 both the narrow-band and wideband GLONASS-M modes will operate in the band 1 592.9525-1 609.3600 MHz. ICAO is currently considering using only the narrow-band mode for the GNSS~~**~~;

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* This Question should be brought to the attention of the International Civil Aviation Organization (ICAO).

~~** Reference to the use of spectrum by GLONASS prior to 1998 has been omitted because the studies are not expected to be completed until after that date.~~

~~g) that parts of the frequency bands allocated to the radionavigation-satellite service are also allocated to the fixed service in certain countries (RR 5.359) on a co-primary basis systems;~~

g~~h~~) that some administrations may be currently using, or may be planning to use the band ~~occupied by GPS and GLONASS~~allocated to RNSS for fixed service operations;

h~~i~~) that such fixed service operations may have the potential to cause harmful interference to GNSS operations in the band,~~;~~

~~k) that, according to RR 5.36, all primary services within an allocated frequency band have equal rights;~~

~~l) that RR Appendix 3 specifies the maximum permitted spurious emission power levels,~~

recognizing

a) that the radionavigation-satellite service provides a navigation service relating to safety of flight when used in the aeronautical environment and that RR No. 4.10 recognizes that safety services require special measures to ensure freedom from harmful interference;

b) that parts of the frequency bands allocated to the radionavigation-satellite service are also allocated to the fixed service in certain countries (RR No. 5.362B) on a co-primary basis systems;

c) that, according to RR No. 5.36, all primary services within an allocated frequency band have equal rights;

d) that RR Appendix 3 specifies the maximum permitted spurious emission power levels,

decides that the following Question should be studied

1 What is the maximum permissible interference level from ~~existing~~ fixed services in the 1 559-1 610 MHz band to ensure no harmful interference to GNSS en route, terminal and approach and landing operations?

2 What separation distance would be necessary for GNSS equipped aircraft to maintain from fixed service operations to be afforded protection from harmful interference?

3 How should the interference protection criteria for the radionavigation-satellite service consider aggregate and single entry interference?

4 How should the out-of-band and spurious emissions in their relative domains from other radio services ~~and ISM~~ operating in other frequency bands be accounted for in the protection criteria of the radionavigation-satellite service?

further decides

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

2 that the above studies should be completed by ~~2005~~ the end of the study period in preparation for WRC-07.

Category: S1

ANNEX 6

Source: Document 8/104

DRAFT REVISION OF QUESTION ITU-R 228/8

Future submission of satellite radio transmission technologies for International Mobile Telecommunications-2000

(2000)

The ITU Radiocommunication Assembly,

considering

a) that universal coverage and seamless global roaming are key International Mobile Telecommunications-2000 (IMT-2000) objectives, and the satellite component of IMT-2000 will form an essential part in realizing the complete IMT-2000 vision;

b) that the ITU has been developing IMT-2000 with the aim of producing Recommendations which would allow for its introduction into service in the 2000~~-2005~~/2007 time-frame;

c) that the ITU-R has produced a number of Recommendations which have l~~e~~ad from the IMT-2000 concepts, through stages of increasing detail, to those defining the key characteristics of the radio interfaces and ultimately their specification;

d) that ~~in response to a time limited ITU invitation,~~ six satellite Radio Transmission Technologies (RTTs) have been initially adopted ~~as satisfying the evaluation requirements~~ for IMT-2000, and that an additional RTT has been approved at a later stage;

e) that IMT-2000 radio interfaces have been designed to be flexible and are expected to accommodate service requirements for an extended period;

f) that the satellite component of IMT-2000 systems will provide different categories of services in various operating environments as envisaged in Recommendation ITU-R M.1034;

g) Question ITU-R 229/8,

recognizing

a) that while the choice of satellite RTTs will be based on an extensive range of technical and economical factors, including the services to be supported, the environments in which these services will be provided, and the orbital constellation utilized, some of these factors will be in common with terrestrial technologies, some of them are unique to satellite technologies, and some of them require different consideration when applied to satellite technologies;

b) that since satellite systems are particularly resource limited, for example, power and spectrum, satellite RTTs are optimized to the specific scenarios under which the satellite system will be operating and the ~~market~~user needs and environments to be served;

c) that, while a prime objective for IMT-2000 has been to minimize the number of radio interfaces and because of the constraints on satellite system design and deployment, a few satellite RTTs may be required for IMT-2000 (see Recommendations ITU-R M.1167 and ITU-R M.1455);

d) that there is a need to maintain flexibility, as far as possible within the existing regulatory framework, to address future satellite RTTs or to modify existing ones as changes occur in ~~market demands~~user needs, technological developments or to maximize commonality with the terrestrial component of IMT-2000~~,~~;

e) that there is a need to merge, to the extent practicable, these interfaces, in order to provide interoperability of the radio networks;

f) the existence of Resolution ITU-R 47,

decides that the following Question should be studied

1 What is the method for the submission of new or modified satellite RTTs for IMT-2000?

2 What is the process for the evaluation of these new RTTs, their ability to interoperate with other existing RTTs, and inclusion within the existing Recommendation ITU-R M.1455 on key characteristics for the IMT-2000 radio interfaces and the other related IMT-2000 radio interface Recommendation ITU-R M.1457?

further decides

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

2 that the above studies should be completed in early 2007~~2005~~.

Category: S1

ANNEX 7

Source: Document 8/103

DRAFT REVISION OF QUESTION ITU-R 83-4/8*

Efficient use of the radio spectrum and frequency sharing within the mobile-satellite service

(1988-1990-1992-1993-2002)

The ITU Radiocommunication Assembly,

considering

a) that there is a need for studies to be carried out in the ITU-R to establish guidelines for sharing within the mobile-satellite service (MSS);

b) that WARC-92 and subsequent WRCs adopted new MSS allocations;

c) that work is being carried out to develop techniques which can improve spectrum utilization;

d) that there are shared frequency bands allocated to different MSS and other services;

e) that the operating and technical characteristics of a system supporting the MSS may differ from those applicable specifically to the aeronautical mobile-satellite service, land mobile-satellite service or maritime mobile-satellite service;

f) that in the interest of efficient use of the radio-frequency spectrum and to minimize the equipment which mobile units carry, there might be overall merit in establishing shared or adjacent frequency allotments for the mobile services and the MSS;

g) that the operating characteristics of mobile earth stations may require different coordination measures from those used for the fixed-satellite service;

h) that non-geostationary satellite networks/systems implementing these MSS allocations may have different constellations, with different altitudes and different inclination angles;

j) that there are Earth-to-space and space-to-Earth MSS allocations in the range 1 613.8-1 626.5 MHz,

decides that the following Question should be studied

1 What are the preferred frequency bands, from a technical and operational point of view, for satellite-to-mobile earth station links and mobile earth station-to-satellite links?

2 What are the advantages and disadvantages of techniques which facilitate improvement of spectrum utilization e.g. low rate voice coding, different modulation techniques, etc.?

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* This Question should be brought to the attention of Radiocommunication Study Groups 4, 7 and 9.

3 What is the feasibility of intersystem and intrasystem frequency sharing in the case of mobile-satellite systems, and what sharing criteria are needed for frequency coordination?

4 What are the more suitable spot beam system techniques which provide for both flexible frequency and flexible power distribution to satellite beams while providing for efficient use of the spectrum allocated to the MSS?

5 What are the practical strategies for achieving efficient use of the geostationary orbit and frequencies allocated to the MSS, recognizing that some networks/systems will be optimized for regional coverage and some will be optimized for global coverage?

6 What are the practical strategies for efficient spectrum use and reuse by non-geostationary satellite systems?

7 What is the feasibility of frequency sharing between mobile-satellite systems which use non-geostationary orbits with systems which use the geostationary orbit?

8 What mechanisms can be employed to ensure efficient use of the geostationary orbit when non-geostationary systems are implemented in the same frequency bands?

9 What mechanisms can be employed to ensure efficient use of spectrum by non-geostationary systems when geostationary systems are implemented in the same frequency bands?

10 What are the coordination methods and the necessary orbital data relating to non-geostationary-satellite systems?

11 What are the interference mechanisms, calculation methods and possibilities and technical solutions that are available to permit bi-directional use of the 1 613.8-1 626.5 MHz band?

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 ~~2005~~2007.

Category: S1