International Telecommunication Union

RESOLUTION 9
(Rev. Doha, 2006)

Final Report

ITU-D STUDY GROUP 2 4th STUDY PERIOD (2006-2010)

REPORT ON RESOLUTION 9 (Rev. Doha, 2006)

Participation of countries, particularly developing countries, in spectrum management

THE STUDY GROUPS OF ITU-D

In accordance with Resolution 2 (Doha, 2006), WTDC-06 maintained two study groups and determined the Questions to be studied by them. The working procedures to be followed by the study groups are defined in Resolution 1 (Doha, 2006) adopted by WTDC-06. For the period 2006-2010, Study Group 1 was entrusted with the study of nine Questions in the field of telecommunication development strategies and policies. Study Group 2 was entrusted with the study of ten Questions in the field of development and management of telecommunication services and networks and ICT applications.

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We wish to thank the authors of contributions for their steadfast support in preparing this report:

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REPORT ON RESOLUTION 9
(Rev. Doha, 2006)

PREFACE

The active participation of countries, particularly developing countries, in frequency spectrum management is one of the important concerns of every administration throughout the world. The extraordinary growth rate of mobile telecommunications is just one indicator that the use of radiocommunications is essential to the social and economic welfare of any nation. Additionally, the calculation of fees for the use of the spectrum is another issue for which some administrations are seeking guidance from ITU, because there is no universal solution that can balance the need to promote telecommunications, determine an economic value for the spectrum use and take into account national circumstances and policies. This report, the result of the fruitful collaboration between ITU-R Study Group 1 and ITU-D Study Group 2, is intended to assist the administrations and telecommunication operators to reach acceptable solutions for a wide variety of radiocommunication questions.

At the completion of this stage of the work, we would like to commend Mr. Robin H. Haines (United States of America), Mr. Simon Koffi (Côte d'Ivoire) and Mr. Jean-Pierre Huynh (France), the three Co-Chairmen of the Joint ITU-R/ITU-D Group on Resolution 9 (Rev. Doha, 2006), dealing with "Participation of countries, particularly developing countries, in spectrum management".

It is our sincere wish and expectation that this report will become a useful tool for both those working with respect to spectrum management and radio monitoring as well as for those facing the problems of the calculation of spectrum fees.

Sami Al Basheer Al Morshid
Director, BDT

Valery Timofeev
Director BR

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Introduction

Resolution 9, first adopted by the World Telecommunication Development Conference (WTDC-98), and revised first by WTDC-02 and subsequently by WTDC-06, requests the Directors of ITU-D and ITU-R to develop a report, in several stages, on current and foreseen national uses of the radio-frequency spectrum. This resolution also requires the Directors of ITU-D and ITU-R to consider and implement effective means to encourage and facilitate the active participation of both developing and least developed countries in the preparation of this report.

In 1999, and in response to this resolution, ITU-R Study Group 1 and ITU-D established a joint ITU-R/ITU-D group, the "Joint Group on Resolution 9". The Joint Group prepared a report entitled WTDC-98 Resolution 9: Review of national spectrum management and use of the spectrum. Stage 1: 29.7-960 MHz". This report was approved by ITU-R Study Group 1 and ITU-D Study Group 2 and presented at WTDC-02, which, with the approval of Resolution 9, requested the Joint Group to proceed with Stage 2 of the report, to review national spectrum management and use of the radio spectrum in the frequency range 960-3 000 MHz.

In addition to the work programmed to develop the second stage of the report, WTDC-02 requested that the Joint Group should include in its scope the provision of assistance to BDT in Programmes 2 and 4 of the Istanbul Action Plan, with respect to "Spectrum management and radio monitoring" and the preparation of a report in answer to Question 21/2 "Calculation of frequency fees".

The second stage of the report on Resolution 9 (Rev. Istanbul, 2002) and Question 21/2 was approved by ITU-R Study Group 1 and ITU-D Study Group 2 and presented at WTDC-06, which approved a further revision incorporating Question 21/2 in Resolution 9.

For the new study period, WTDC-06 requested the Joint Group to prepare Stage 3 of the report on the review of national spectrum management and use of the spectrum in the frequency band 2 900 MHz - 30 GHz, to continue the development of the "Spectrum Fees" database and provide additional guidelines and case studies, based on practical experiences of administrations in the field of spectrum fees.

For the current report, Stage 3, the Joint Group used the same methodology as for Stages 1 and 2:

1. collect selected information from all Member States and all Sector Members of the Radiocommunication and Telecommunication Development Sectors, through the use of a questionnaire distributed jointly by the Radiocommunication and Telecommunication Development Sectors;
2. use the spectrum management expertise in the Joint Group on Resolution 9 to analyse the collected information; and
3. produce a report that will be reviewed by ITU-R Study Group 1 and ITU-D Study Group 2.

The Questionnaire for Stage 3 of the Report on Resolution 9 was published jointly in May 2007 by the Telecommunication Development Sector and the Radiocommunication Sector.[1] Part I of the Questionnaire dealt with national spectrum use. Member States were requested to provide information on their national use of the spectrum in the frequency range 2 900 MHz to 30 GHz, an extension of the frequency ranges studied in Stage 1 (29.7-960 MHz) and Stage 2 (960-3 000 MHz) of the Report on Resolution 9.

For convenience in responding to these questions, an extract of Article 5 of the Radio Regulations (Allocation Table for the frequency bands from 2 900 MHz to 30 GHz) was provided in both paper and electronic forms of the Questionnaire. Administrations were encouraged to submit the requested information in electronic form to facilitate analysis by the Joint Group.[2] An example extract from a national table was given to show the typical information requested. The information on national spectrum use is being made

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[1] BDT Administrative Circular CA/08 and BR Administrative Circular CA/167.

[2] For Parts II and III of the Questionnaire, administrations were encouraged to provide their responses on a dedicated ITU web page.

available for several key purposes: first, it demonstrates that a large number of administrations have recognized the benefits of making this information available publicly to inform users about the frequency availability for their particular communication requirement and to guide manufacturers in the design and construction of equipment. Second, it is intended to facilitate the co-ordination requirements of use of the spectrum, either nationally or with neighbouring countries, or with other countries at an international level. Third, by giving examples to show the variety of formats and depth of information provided, it encourages and guides administrations currently in the decision-making process of how to publish their Tables.

It was not possible to include all the national frequency tables in the final Report because the quantity of the information is too large. Also, although administrations follow the international table at service allocation level, there are considerable differences on a national, regional and worldwide basis in the detailed arrangements for specific applications, channel and band-plans, etc. It could be misleading to summarize or attempt to show commonality. Further, the information collected through the Questionnaire can be considered as only a "snapshot" of the situation at that particular point in time. It is necessary to revise national tables from time to time to accommodate new applications and requirements and changes resulting from World Radiocommunication Conferences.

The Joint Group therefore considered how best to present this information in a useful format. The computer files administrations supplied in responses to the Questionnaire are available on the ITU-D website and on CD-ROM. Also, many administrations include their Tables on their websites. Therefore, the Report includes website addresses of national organizations for those administrations that provided this information.Finally, Part I also provides a list of points of contact for each administration. The Questionnaire invited administrations to identify the person responsible for responding and able to answer queries on the information. This information may provide a useful reference for informal contact and cooperation between administrations.[3]

[3] Individuals listed are designated focal points only for information relevant to the WTDC Resolution 9 Questionnaire for Stage 3. Requests for other information should be directed to the official ITU contact for that Member State, as listed in the ITU Global Directory.

Part I: National use of spectrum from 2 900 MHz to 30 GHz

ANALYSIS OF THE RESPONSES TO PART I OF THE QUESTIONNAIRE

1 Overview

Part I of each of the three questionnaires sought information on the national strategies being followed by Member States for the allocation and use of the radio frequency spectrum. To facilitate the preparation of responses, the Questionnaires included relevant portions of the International Table of Frequency Allocations (Article 5 of the ITU *Radio Regulations*). Member States were requested, in preparing their responses to these Questionnaires, to identify the radio service allocations in the respective frequency ranges and to provide information regarding the application of these services for satisfying spectrum requirements in given bands. These Questionnaires also asked the Member States to designate individuals who would serve as focal points for addressing matters related to these Questionnaires.

As is stated in the National Spectrum Management Handbook, "[a] national table of frequency allocations provides a basis for an effective spectrum management process."4 Consequently, an objective of the Joint Group was to promote the establishment of national allocation tables where they do not yet exist. The approach pursued by the Joint Group toward achieving this objective was to first obtain a broad range of existing national allocation tables and then make them readily available as examples that could be used by an administration in the development of both its own national table of frequency allocations table and an effective national strategy for radio frequency spectrum management.

The responses submitted to these two questionnaires contain a wealth of highly useful information. All of this information is posted on the ITU-D Sector web page and is readily available to spectrum managers worldwide.Annex 1 contains a list of the fifty-four Member States, grouped by region, that provided responses to Part I of the Questionnaire for Stage 3. Annex 2 contains a table characterizing those responses. For each response the table shows the official designation of the Member State, the language used in the response, any website and contact point information provided in the response, and whether the response provided sub-regional allocations, national allocations, specific information on applications within allocated radio services, and remarks or additional information.

2 Examples of National Allocation Tables

In reviewing the national allocation tables submitted by the various administrations, some notable differences are evident in their scope, content, and format. While some administrations focused on national allocations, other administrations also presented their spectrum allocations in context with the provisions of the Radio Regulations and with strategies for spectrum use throughout their geographic region. While some administrations focused on current spectrum allocations, other administrations also presented strategies for planned changes in spectrum allocations and planned applications.

The response from Belize, an extract of which is given in Annex 3, provides allocated radio services and remarks next to each frequency range. The allocations comply with the ITU and CITEL allocations, and the National Frequency Plan of Belize. In some bands, the remarks may indicate applications within a service, such as trunked mobile or cellular, channel plans, sharing arrangements or frequencies to use in a natural disaster.

The national frequency allocations of the Republic of Seychelles follow those of Article 5 of the *Radio Regulations*, as indicated in the extract shown in Annex 4. The table also provides information on applications in some bands, as well as references to other sources, including ITU-R Recommendations and national regulations.

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4 International Telecommunication Union, Handbook—National Spectrum Management, 2005 Edition, § 1.4.2.

In the extract of the national table of frequency allocations for the Sultanate of Oman, given in Annex 5, national allocations for two frequency bands reflect the additional allocation provided in a footnote of the *Radio Regulations*. The national table also indicates civil, military or shared use of the frequency bands.

As the extract of the national table of frequency allocations for the Republic of Moldova shows, in Annex 6, the national table consists of three columns: frequency band and services, footnotes and usage. The footnotes column shows both ITU and national footnotes, with the latter provided elsewhere in the response. The usage column indicates whether the allocation is used exclusively for governmental purposes, for nongovernmental purposes, or shared between both users.

The extract of the response from the Republic of Cyprus, shown in Annex 7, includes ITU allocations for Region 1 and the sub-regional European Common Allocation, along with national allocations. The allocation columns include both ITU and sub-regional footnotes. Additional columns in the table provide extensive information on national use of the allocations.

Part II: National spectrum management

ANALYSIS OF THE RESPONSES TO PART II OF THE QUESTIONNAIRE

3 General structure of Part II of the questionnaire

For this part, the questions were grouped into key aspects of national spectrum management and are dealt with in the following sections:

3.1 Legal and organizational aspects (Questions 1, 2, 4, 5, 6, 7, 8 and 9) (Part A)

3.2 Technical aspects (Questions 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22 and 23) (Part B)

3.3 Economic aspects (Question 24) (Part C)

3.4 Problems (Question 25) (Part D)

Each of these sections is structured to give:

- a statement of the questions asked;
- a brief explanatory review, in order to place the questions in context;
- identification of any obvious misunderstanding of the questions;
- a tabular presentation of the analysis of the replies, by region;
- preliminary summary per question.

For each of these categories, a tabular country-by-country presentation is given in Annex 8 to the report. The general questions on national spectrum management given below are based partly on the basic principles set forth in the handbook "National spectrum management".

A total of 74 replies were received for Part II as compared with eighty for the previous study period, i.e. six fewer.

All replies are available at the following address: http://www.itu.int/ITU-D/CDS/gq/Resolution9/. Administrations may, at any time, themselves correct or update their own information in the database, via their user name and password. The database can be accessed at http://www.itu.int/ITU-D/CDS/gq/BDT-SF/index.asp.

3.1 Legal and organizational aspects of national spectrum management (Questions 1, 2, 4, 5, 6, 7, 8 and 9)

Background

National spectrum management consists of the structures, capabilities, procedures and regulations whereby each administration controls the use of the radio frequency spectrum within its national geographical boundaries. International agreements provide each national government with the flexibility and autonomy required to regulate such use on its territory. It is up to each administration to draw up its own laws and organization to carry out the duties of spectrum management. The spectrum management system will develop in direct relationship to the level of radio use within a country, and the laws may be changed to enable development of the spectrum.

Question 1 – Who owns the spectrum?

Seventy-three (73) administrations replied that the spectrum is a natural or national resource belonging to the State or government. One administration indicated that the regulatory authority owns the spectrum.

Question 2 – What legal or regulatory texts govern your national spectrum management processes? (Include the promulgation dates and the date of the most recent update.)

The countries that replied referred to national telecommunication acts and radio regulations. Only one administration failed to provide details of a relevant text, although answering other questions in Part II.

Question 3 – Are amendments planned to these texts? : Yes _____ No _____

If YES, when? _____

A total of 50 administrations replied that they were planning changes, and some added explanations about the changes. Most of the administrations envisaging changes are from the developing countries. Moreover, several administrations expect changes as part of the establishment of a new regulatory authority.

Question 4 – Are regulations and procedures for spectrum management (e.g. radio services, licence requirements) publicly available in your country? Yes _____ No _____

Sixty-six (66) of the countries that replied to the question publish their regulations and procedures. The table above provides a breakdown of the replies by region. Two administrations (one from Africa, one from the Arab States and one from the Asia-Pacific region) indicated that the legal texts or regulations were not accessible to the public.

Question 5 – Is there a national table of frequency allocations? Yes ___ No___

Background

A national table of frequency allocations is a basic tool for an efficient spectrum management process. It provides a general plan for spectrum use and the basic structure to ensure efficient use of the spectrum and the prevention of RF interference between services. Through use of the table, manufacturers will have a guide to where in the spectrum to design and build equipment and users will know where to operate. As described in the handbook "National Spectrum Management", the International Table of Frequency Allocations (Article 5 of the Radio Regulations) forms the basis for national tables and in some countries this may be used as the national table. Nevertheless, other countries have included additional information on national use varying in detail from showing which service operates when the Radio Regulations offer a choice, to spectrum available for government and non-government use, and, for specific sub-bands, channel arrangements and equipment specifications in use. Example extracts of national allocation tables are given in Part I of this report.

The table above recapitulates the replies received by region. It is based on 73 replies as against 73 for the previous study period.

It may be noted that 93% of the replies indicate that there is a national allocation table. The score for the countries of Europe is 100%.

Is it published? Yes_____ No_____

Fifty-eight administrations out of 70 (approximately 83%) indicated that they publish their national table of frequency allocations.

Question 5.1 – If YES, who is responsible for drawing up and updating the table?

Most of the replies indicated that the table of frequency allocations is drawn up by the entity responsible for spectrum management.

Question 5.2 – What is its legal status?

Most of the administrations indicated that the table of frequency allocations has the status of a decree or law in their country.

Question 6 – Spectrum redeployment

Recommendation ITU-R SM.1603 gives the following definition:

"Spectrum redeployment (spectrum refarming) is a combination of administrative, financial and technical measures aimed at removing users or equipment of the existing frequency assignments either completely or partially from a particular frequency band. The frequency band may then be allocated to the same or different service(s). These measures may be implemented in short, medium or long time-scales."

Some countries cooperate at regional level to determine those parts of the spectrum that readily lend themselves to redeployment in order to facilitate the harmonized introduction of new applications.

Question 6.1 – Has there been any spectrum redeployment in your country? Yes___ No____

Thirty-nine (39) countries out of 70 indicated that they have undertaken spectrum redeployment.

Question 6.2 – If NO, has a decision to proceed with spectrum redeployment been taken in your country? Yes ___ No ___

Of those administrations that replied to the question and have never undertaken redeployment, fourteen (14), i.e. 39%, indicated that they intended to redeploy spectrum.

When?

The dates foreseen for redeployment varied from one administration to the next, but most countries indicated that they would proceed with it as soon as it was necessary.

Question 6.3 – If YES, has a redeployment method been defined? Yes _____ No _____

The percentages by region indicated in the table above (ranging from 40 to 67%) correspond to the percentage of countries that indicated that they utilize a spectrum redeployment method.

Question 6.4 – Describe the method set up

Indicate in particular if the administration (or the body that manages the spectrum) finances all or part of the redeployment, and describe the consultation process (if one exists) for sharing the costs of redeployment with users:

There are various methods to expedite frequency clearance in bands and they can be divided into long-term and short-term approaches.

The long-term approach involves forward planning with a long period of time before the frequencies are required. This allows advance notification of assignments and allows users to release frequencies at a routine system change, e.g. end of equipment life or expiration of licence. Geographical (space diversity) is another option. Six administrations, mainly from the European region, use at least one of the passive methods.

However, when the need for redeployment is more urgent a pro-active approach is required and the short-term options used range from incentives to licence revocation. Incentives can be used to persuade existing users to volunteer to release assignments. Spectrum pricing has also been identified as a method that can simplify the spectrum redeployment process.

Consultation with public and other affected users is often included in the preliminary procedures.

Redeployment can incur expenditure to the existing user for new equipment and infrastructure and many countries that replied referred to the basis for compensation. Compensation payments can be derived from State funds or, more commonly, from the new user of the released frequencies. The State and the new user could also jointly fund compensation. The actual compensation amount can also be negotiated and can take account of expenditure that would have been expected even without redeployment, for example, end of life equipment replacement costs.

Apart from the use of passive methods there was no clear regional pattern of methods of redeployment or compensation.

Question 6.5 – Indicate any redeployment operations that have already been carried out (frequency bands, former and current use, etc.)

The redeployment operations carried out by each administration may be found at the website mentioned in paragraph 3 above.

Question 7 – Secondary spectrum trading

Some administrations have introduced the possibility for companies to transfer spectrum utilization rights to other companies. This practice is known as "secondary spectrum trading".

Question 7.1 - Has your country created possibilities for secondary spectrum trading? Yes _____ No ____

Eleven administrations out of 69 have introduced secondary spectrum trading; these are mainly administrations from Europe and CIS, which account for eight (08), along with one (01) African country and one (02) Americas country. No administration from the Arab States or Asia-Pacific has introduced secondary spectrum trading.

If NO: are there any plans to do so? Yes _____ No _____ When? _____

Of those countries that have not introduced secondary spectrum trading, twelve (12), i.e. 20 per cent, plan to do so within time-frames that vary.

Question 7.2 – If your country has created possibilities for secondary spectrum trading, please specify:

Which frequency bands and applications are involved? _____

What are the conditions governing such transfers? _____

Apart from several countries from Europe and CIS which indicated the GSM, UMTS/IMT2000 and 3 400 - 3 600 MHz bands as having been used for secondary spectrum trading, the other administrations having introduced secondary spectrum trading indicated neither the frequency bands nor applications concerned.

Question 8 – Spectrum management organization

Question 8.1 – Please describe the structure of your country's spectrum management organization, enclosing a copy of the organization chart:

There was a variety of replies from administrations on how they organized their national spectrum management organization, making it very difficult to analyse them statistically.

Of the administrations that replied wholly or partially to question 8, very few submitted an organization chart for their administration.

Question 8.2 – Is the responsibility for spectrum management as defined in the Radio Regulations assigned to a single body or is it shared between different organizations (e.g. separate bodies for regulatory issues and general policy, or for government and non-government users)? Yes _____ No _____

Forty-seven administrations out of 63, i.e. 75%, have a single organization for spectrum management.

How many spectrum management organizations are there in all?

In the Africa region, three administrations of those that replied to the question indicated that they had two spectrum management organizations.

In the Americas, four administrations of those that replied to this question indicated that they had two spectrum management organizations.

All of the Arab States administrations that replied to this question have a single spectrum management organization, and the same is true for the Asia-Pacific administrations.

In Europe and the CIS countries, of the 24 administrations that replied to this question, five countries have two spectrum management organizations, to who have three spectrum management organizations, and one country has four spectrum management organizations.

It is clear from the 70 replies received for this question that 52 organizations other than ministries are responsible for spectrum management, 17 ministries manage the spectrum, and a single operator manages it. Liberalization of the telecommunication sector explains why ministries are increasingly withdrawing from spectrum management and devoting themselves to definition of the regulatory framework.

Question 8.3 – What is the official full name of the spectrum management body? Is it a ministry, a separate organization responsible directly to the government, or a non-governmental body?

The administrations that replied to this question all specified the name of the organization responsible for spectrum management as well as its relationship with the government.

Question 8.4 – If responsibility for spectrum management is shared between several bodies, indicate:

a) Their respective domains of responsibility

Of the 24 administrations that replied to this question, 16 indicated the respective domains of responsibility.

b) The arbitration procedure between the different bodies:_____

Of the 16 administrations that replied to this question, nine did not indicate the arbitration procedure between the spectrum management organizations.

Question 8.5 – Are there any plans to change the structure of the organization (e.g. as a result of changes in telecommunications policy)? _____

Fifty-four replies were received for this question; 43 of the administrations that replied foresee no change to their organization.

Question 9 – Spectrum management workforce

Total number of people in national spectrum management.

From the replies it can be seen that 52.4% of the administrations having replied to the question use a workforce of between 10 and 100 persons for national spectrum management, that 14.3% of the administrations stated that they use over 100 persons for that activity, and that 33.3% use fewer than 10 persons.

The replies received show that spectrum management accounts for a total of 8 297 individuals taken across the board. The figures communicated show that the majority of the workforce is to be found in the Asia-Pacific region, particularly in China.

Numbers of specialist staff (engineers and technicians) in national spectrum management

From the replies it can be seen that 50% of the administrations having replied to the question use between 10 and 100 engineers and technicians for national spectrum management, that 10% of the administrations stated that they use over 100 engineers and technicians for that activity, and that 40% use fewer than 10 specialists for spectrum management.

Of the 8 297 individuals working in spectrum management, 4 195 are specialist staff (engineers and technicians) in national spectrum management. The Asia-Pacific region alone accounts for 2 881 specialists working in national spectrum management. It should be noted that China employs the most engineers and technicians.

3.2 Technical aspects of national spectrum management

Question 10 – Technical regulation of radiocommunications equipment

Question 10.1 – Is there a requirement for the technical characteristics of radiocommunications equipment to comply with certain requirements (or equipment standards, such as the ITU-R Recommendations) to avoid harmful interference to other services and users? Yes _____ No _____

Background

Article 3 of the Radio Regulations concerns the requirements for the technical characteristics of stations with the objective to avoid interference.

Appendices 2 and 3 respectively of the Radio Regulations give maximum values for frequency tolerance and spurious emissions. Administrations have the responsibility to ensure that equipment authorized for use in

their territory conforms to these Regulations. This is achieved through the use of "equipment standards" (documents which specify the minimum performance standards required for radio transmitters and receivers and other equipment) and the associated procedures to ensure conformity with these standards.

Of the countries that replied, 98.5% require compliance. The table above gives the breakdown of the replies received by region.

Question 10.2 – Are these technical requirements or equipment standards developed domestically, or are they derived from those used by other administrations or standards organizations, whether international or regional? – National _____ Other _____

Some administrations indicated that these requirements were developed at "national" or "other" level, and some indicated both.

The table above provides a breakdown of the results by region and development level.

The range of answers received were: National
National and other

Question 10.3 – Is there a procedure for ensuring that radiocommunications equipment complies with the technical and operational requirements? For example:

Type approval: _____; Manufacturer's declaration of compliance: _____; Other (please specify): _____

Countries replied with one or more of the options proposed, and some gave other examples, such as the RTTE Directive. To simplify the presentation, the results are divided into several tables according to the type of answer, i.e. "type approval, manufacturer's declaration of compliance, or other".

The tables show the regional breakdown. The "percentage of all replies" is based on the number of replies received for the question.

Eighty-three per cent of the replies received from countries indicate type approval and 100 per cent indicate use of the manufacturer's declarations of compliance.

Seventy-two per cent of the replies indicate other provisions.

Finally, there is a table summary showing all replies with a regional breakdown.

Question 11 – Management of frequency assignment records

a) Does the national administration have a registry (computerized or not) for national frequency assignments and spectrum use (e.g. in the form of a DBMS-based database)?
Yes _____ No _____

Ninety-one per cent of the Member States have a system for keeping and maintaining records of frequency assignments. Two African administrations do not have such systems. All the countries in the other regions that replied to this question have such systems. In the Americas and Europe-CIS regions, 100% of administrations have such a system.

This shows the importance of this tool for managing assignments.

b) Is there a single national registry or are there separate registries for different categories of users (for example, one system for assignments to government users and another for assignments to non-government users)? Single _____ Separate (give details) _____

Most Member States (87%) use a single database for all assignments and 13% of administrations that replied have separate registries for frequency assignments.

c) What is the approximate size of your registry (as of 2007)?

Number of frequency assignments: _____

The rate of abstention (45%) for this question is lower than in the previous study period.

Fifty per cent of the administrations which replied to the question have a DBMS containing between 1 000 and 10 000 frequency assignments.

Number of licences:

Forty-six administrations replied to this question. The rate of abstention for this question was 36%. The abstentions were mainly by least developed countries, particularly in Africa, the Americas and Asia-Pacific. The difficulty may be due to insufficiently clear wording in the question, creating some confusion between the number of networks per band and the number of licences. In the event, 35% of administrations have issued less than 1 000 licences and 28% have delivered over 10 000 licences.

d) Can the frequency assignment be consulted by the public? Yes _____ No _____

Sixty-eight Member States replied to this question. It emerged that 62% of administrations do not make their records available to the public. Presumably privacy and security are the reasons.

Nonetheless, some administrations – 26 administrations, i.e. 38% – are in the process of opening up. This may be a result of improved capabilities in protecting assigned frequencies and information content.

e) Is the registry computerized? Yes _____ No _____

Sixty-eight replies were received for this question. The trend is towards computerization (87%). In the Asia-Pacific, Arab States and Europe-CIS regions, DBMS computerization is 100%. The lowest DBMS computerization rate is in the Americas region.

Of the African States that replied, 33% have no computerized DBMS.

f) If computerized, what is the name of the system or product used? _____

Several administrations use a manual database. One administration uses WinBASMS exclusively, in its current state. Those administrations using a computerized DBMS indicated various different systems.

Question 12 – Coordination of frequency assignments with other countries:

Background

Coordination of frequency assignments is essential for efficient sharing between radio stations within a given zone, or between different administrations or services. The procedures for coordination are clearly laid down in the relevant parts of the Radio Regulations. The Radiocommunication Bureau plays a crucial role, the ultimate purpose of which is to protect national radio systems against interference.

Do you coordinate assignments to terrestrial stations? Yes _____ No _____

There were sixty-nine valid replies for this question. The tendency (88%) is to practice coordination for frequency assignments to terrestrial stations. However, 42% of administrations in the Americas region and 29% in the Asia-Pacific region do not yet do so.

Do you coordinate assignments to space stations? Yes _____ No _____

For this question there were 67 replies. The tendency in the Arab States and Europe and CIS is to practice coordination for frequency assignments to space stations, in particular through the Radiocommunication Bureau. Over half of the African States do not practice coordination. Overall, 67% of administrations coordinate frequency assignments to space stations.

Question 13 – Notification of frequency assignments

Do you notify ITU of frequency assignments as required by the Radio Regulations?

Virtually all Member States (85%) notify their frequency assignments in conformity with the Radio Regulations. A point of interest that remains unexplored is the extent to which bilateral or multilateral agreements with neighbouring countries are used in the process of notifying and coordinating frequency assignments.

If not, please explain why, listing any difficulties:

The administrations that replied NO gave as their reason the fact that the frequencies assigned did not have to be notified, or that they could not do so owing to lack of staff. Some administrations intend to do so shortly.

Question 14 – Do you have a policy and planning function for national spectrum management (i.e. a national strategy for future use of the spectrum?

The table above recapitulates the replies received by region, based on 67 replies. Eighty-eight per cent of administrations have a policy and planning function for national spectrum management. It may be noted that 100% of the countries of the Arab and Asia-Pacific regions apply a national strategy for the future use of the spectrum

Question 15 – Do you perform technical analyses of frequency assignment requests?

Of the 67 Member States who replied to this question, 97% perform technical analyses of frequency assignment requests. It should be noted that analysis is essential to determine electromagnetic compatibility in frequency utilization and ensure that the new assignment does not cause harmful interference to existing services.

Question 16 – Do you perform radio monitoring of terrestrial radio services?

Question 16 concerns technical monitoring facilities set up by administrations (fixed, mobile and transportable stations) for different parts of the radio spectrum.

It must be borne in mind that the purpose of technical monitoring with specialized stations is to assist administrations throughout the radio spectrum management process, including frequency assignment and planning. Thus, monitoring stations provide compliance information with respect to the technical requirements in the transmission licences, within the overall framework of radio spectrum management. Thus, technical monitoring programmes are used to obtain precise data on currently valid assignments. Technical monitoring is an essential part of the spectrum management process, and the monitoring stations are an indispensable resource for effective technical monitoring of the spectrum at the national level. They also serve for indentifying and eliminating interference.

Sixty-eight administrations replied to this portion of the questionnaire (Part II). It may be noted that 65 administrations responded when the previous questionnaire was sent out under Resolution 9 (2001), thus three more administrations have replied this time round.

Fixed monitoring stations

a) How many fixed monitoring stations do you have?

The results for fixed monitoring stations may be found at the website mentioned in paragraph 3 above.

– Chart 1: Fixed measurement stations
– Chart 2: Fixed DF stations

Closer examination of the replies submitted by administrations shows that **only two administrations** declared the operation of over **600 fixed monitoring stations**. The total number of fixed stations operated per region in the Africa, Americas and Arab States regions does not exceed 50 stations.

b) Please provide a brief list of the facilities available at your fixed monitoring stations (for example receivers, spectrum analysers, direction finding equipment):

c) What is the upper frequency limit of your fixed monitoring stations?

Of the 53 administrations having replied to this question, 30 (57%) stated that their fixed monitoring stations have an upper limit of 3 000 MHz.

d) What is the upper frequency limit of your fixed direction-finding stations?

Of the 46 administrations having replied to this question, 26 (57%) stated that their fixed direction-finding stations have an upper limit of 3 000 MHz.

Mobile monitoring stations

e) How many mobile monitoring stations do you have?

A detailed analysis of the mobile stations declared by administrations may be found at the website mentioned in paragraph 3 above

It may be noted that virtually all (100%) mobile stations have both measurement and DF capabilities.

In addition, the results show that two administrations have over 700 mobile stations between them, i.e. 98% of the total number of mobile stations declared. It should be noted that the Administration of Austria alone, in the Europe and CIS region, declared that it operates 7 777 mobile stations, i.e. 89% of the stations declared.

f) Please provide a brief list of the facilities available in your mobile monitoring stations (for example receivers, spectrum analysers, direction finding equipment):_____

g) What is the upper frequency limit of your mobile monitoring stations?____ MHz

Of the 54 administrations having replied to this question, 25 (46%) stated that their mobile monitoring stations have an upper limit of 3 000 MHz.

h) What is the upper frequency limit of your mobile direction-finding stations? _____ MHz

Of the 53 administrations having replied to this question, 33 (62%) stated that their mobile direction-finding stations have an upper limit of 3 000 MHz

Transportable monitoring stations

i) How many transportable monitoring stations do you have? _____

Closer examination shows that only 3 administrations (China, Spain and Austria) declared the operation of over 110 transportable monitoring stations.

j) Please provide a brief list of the facilities available in your transportable monitoring stations (for example receivers, spectrum analysers, direction finding equipment):

k) What is the upper frequency limit of your transportable monitoring stations? _____ MHz

Of the 43 administrations having replied to this question, 24 (59%) stated that their transportable monitoring stations have an upper limit of 3 000 MHz

l) What is the upper frequency limit of your transportable DF stations? _____ MHz

Of the 33 administrations having replied to this question, 20 (60%) stated that their transportable direction-finding stations have an upper limit of 3 000 MHz

Transportable monitoring stations are increasingly employed by administrations responsible for frequency management. They are used primarily for inspecting radio stations (licence compliance) and tracking down unauthorized or illegal transmitters. It should be noted that most mobile stations perform the functions of both transportable and mobile stations.

General observations

The replies which administrations provided to the 2007 questionnaire show an increase in the utilization of mobile monitoring stations by comparison with fixed monitoring stations:

$$\frac{\text{Fixed stations}}{\text{Mobile stations}} = \frac{3\ 840}{8\ 739} = 0.44$$

NB: The ratio in 2003 was as follows:

$$\frac{\text{Fixed stations}}{\text{Mobile stations}} = 2.30$$

It should be noted that the results from the 2003 questionnaire show a total of 309 mobile stations.

$$\text{Ratio of mobile stations} = \frac{2\ 007}{2\ 003} = 28.3\%$$

This difference may be due to the increasing importance of spectrum management, taking account of the intensive and increased utilization of certain frequency bands requiring the employment of a large number of mobile monitoring stations.

Question 17 – Do you perform space monitoring? Yes _____ No _____

[48] In the 64 replies received, 6 administrations indicated that they perform space monitoring: it is clear that most administrations (91%) do not perform such monitoring. In Asia-Pacific, 60% of the administrations perform space monitoring.

a) Please provide a brief list of the facilities available at your space monitoring stations: _____

On the basis of the replies received, no administration in the Africa, Americas or Arab States regions has facilities for space monitoring. In Europe, just one administration (Germany) has such facilities, which are used by other administrations within the framework of partnership agreements. In Asia, two administrations that they have facilities that are available for space monitoring (frequency meters, power flux-density measurement instruments, signal demodulators, antenna systems, etc.).

b) What tasks do your space monitoring stations perform for GSO satellite monitoring? _____

In Europe and the CIS countries, only one administration described the tasks performed by space monitoring stations. In the other regions, administrations having replied to the question and having space monitoring stations did not indicate the tasks performed.

c) What tasks do your space monitoring stations perform for non-GSO satellite monitoring? _____

Just one administration from the Europe and CIS region replied to the question and stated that its stations are mainly used for power flux-density measurement, trajectory calculation and signal demodulation where non-GSO satellites are concerned.

Question 18 – Does you administration participate in the international monitoring programme of ITU? Yes _____ No _____

Terrestrial emissions

Twenty-four per cent of the administrations that replied to this question participate in the international monitoring programme of ITU. The majority of administrations (76%) do not participate.

Space emissions

The results obtained show that very few administrations (6.6%) participate in the international space monitoring programme.

Question 19 – Cooperation between spectrum management and monitoring services

Please indicate the amount of work (as a percentage) performed by the monitoring service on behalf of:

a) the spectrum management service: _____ %

b) the enforcement service: _____ %

c) the licensing service: _____ %

The results of the analysis of the replies sent in by the different administrations (51 usable replies were received) may be found at the website mentioned in paragraph 3 above.

The data indicate, overall, that the volume of work performed by the monitoring service breaks down to 34.07% for the frequency management service, 36.27% for the enforcement or monitoring service and 26.75% for the licensing service.

Question 20 – Do you perform inspections on radio stations? Yes _____ No _____

The results given in the table above show that most administrations (82%) perform inspections of radio station sites.

Question 20 was expanded into subsidiary questions a) to e) to discover the administrative, legal and technical resources which administrations have at their disposal to ensure radio station inspections are carried out in the best possible manner.

a) What inspection techniques are used by your administration to determine if spectrum users are complying with national or international requirements?

Fifty-four administrations responded positively to the question on radio station inspection, and subsidiary question a) produces 54 replies.

From an examination of the replies given for point a), the following conclusions may be drawn: 82% of administrations performing radio station inspections do so in accordance with national legislation and regulations, using the technical means at their disposal to verify that station facilities are in full compliance with the technical requirements stipulated in their transmission licences.

b) What are the administrative procedures provided for in the inspection policy (e.g. number of inspections, type of notification provided prior to inspection, rules and regulations)?

The vast majority of administrations that replied bases its inspection policy for radio stations on the laws and regulations that are applicable on the national territory, using technical monitoring of stations with the means at their disposal with respect to licensing.

c) What equipment does your administration use to perform technical measurements during an inspection?

To carry out technical measures relating to radio station inspections, administrations require suitable technical equipment.

Consideration of the positive replies received show that a great variety of measuring equipment is in use by administrations, but that the most popular are spectrum analysers, frequency meters and wattmeters, in addition to portable receivers or DF units occasionally. Naturally, administrations also use mobile monitoring stations.

d) What technical parameters does your administration measure when inspecting a radio system?

The replies submitted by administrations included 53 which could be used. The replies varied from one administration to the next and point to a variety of technical parameters.

e) What station records does your administration review when inspecting a radio station?

The administrations that replied to this question mentioned various records, in particular those relating to the licence parameters and databases and frequency assignment databases.

Question 21 – Do you perform technical analyses of complaints of radio frequency interference? Yes _____ No _____

Ninety-seven per cent of the administrations carry out technical analyses in response to interference complaints.

Another question was raised under question 21 of the questionnaire:

Do you have an established consultation process with a government or non-government body for resolving these complaints? Yes _____ No _____

It is observed that only 48% of administrations replied positively, to the effect that they have an established consultation process, involving an organization, for resolving these complaints.

Question 22 – Use of computers for national spectrum management

General

a) Do you use computers for national spectrum management? Yes _____ No _____

In total, 67 usable replies were received; of those replies, 66 administrations, representing a rate of 98.5%, use computers in spectrum management. Only one administration in the Americas region does not use computers in spectrum management. Computers are therefore used extensively in spectrum management.

b) Type of computers: _____

c) How many workstations: _____ or personal computers (PCs): _____

d) Operating system(s): _____

Questions 22a), c) and e)

Administrations using PCs or workstations and utilization of local area network (LAN).

It should be noted that PC availability does not always mean that spectrum management is computerized.

In all, 98.31% of the PCs or workstations are accounted for by the developing countries, and by one administration in particular in the Asia-Pacific region. Of the LANs used for spectrum management, 99.87% are accounted for by developing countries, with extensive use in Europe and CIS.

e) Does your spectrum management system operate within a local area network (LAN)? Yes _____ No _____

Of administrations that replied to this question, 86% indicated that they operate a spectrum management system within a local area network (LAN). Given the replies received to the previous question and to f), there would appear to be some confusion. Both questions would appear to be identical but different replies were received.

f) Do you have access to the Internet? Yes _____ No _____

Internet access is widely available; 95% administrations use it. Construction of websites and their use for spectrum management are in progress, especially in developing countries.

g) Does your administration operate a website to disseminate spectrum management information? Yes _____ No _____

Construction of websites and their use for spectrum management are in progress, especially in the developing countries.

If YES, please provide the address (URL) of the website:

All administrations having indicated that they have a website provided the address.

Spectrum management system for developing countries (SMS4DC)

h) Are you familiar with the SMS4DC product? Yes _____ No _____

Thirty-one administrations are familiar with SMS4DC, i.e. 52% of those that replied. Over half the administrations that replied are familiar with the tool.

i) Does your administration intend to use SMS4DC?

Of the 31 administrations familiar with SMS4DC, 28, i.e. 90%, intend to use it.

j) Does your administration still use WinBASMS? Yes _____ No _____

Four administrations, all from least developed countries, representing 7%, continue to use WinBASMS, as compared with 18% in the previous period. This points to the disappearance of this product which was very

well known in the last study period: it was known to 71% of the administrations that replied to the questionnaire in 2003.

k) Did your administration participate in the regional ITU-D seminar on spectrum management, including SMS4DC applications?

Thirty-three per cent of administrations (19 out of 57 countries), including one from the developed countries, participated in the regional ITU-D seminars on spectrum management, including SMS4DC applications.

Advanced automated spectrum management system (AASMS)

l) Does your administration use an advanced automated spectrum management system (AASMS) recommended by ITU-R Study Group 1 other than SMS4DC?
Yes _____ No _____

Twenty-one administrations, i.e. 36%, use an advanced automated spectrum management system (AASMS) recommended by ITU-R Study Group 1 other than SMS4DC.

m) Has your administration had problems using your AASMS? Yes ___ No ___

Twenty-three per cent of administrations using an advanced automated spectrum management system encounter difficulties in doing so.

n) Describe the problems encountered using your AASMS:

Some administrations indicated that they encounter difficulties in updating the system, the frequency cost calculation methods, licences, AASMS and SMD4DC system compatibility, and familiarity with and migration to the new system.

o) How would you propose to change the AASMS to correct or overcome these problems (give details)?

Administrations encountering difficulties propose system updating or coordination with the software provider when software bugs are involved.

23 – Which of the following ITU-R handbooks and reports do you use:

a) National Spectrum Management, 2005 edition

b) Spectrum Monitoring, 2005 edition

c) Computer-aided techniques for Spectrum Management, 2005 edition

d) Report ITU-R SM.2012-2, Economic aspects of spectrum management, version 200X

ITU-R handbooks and reports are published to help frequency managers in the performance of their duties. The objective of this question is to determine to what extent, and at what level, these documents are used by administrations.

Forty-six (46) countries out of 191 member administrations, i.e. some 24% of ITU Member States, replied. Seventy-six per cent of the administrations having replied to the question stated that they use the Handbook on National Spectrum Management, 2005 edition.

A breakdown of responses by country, with distribution, may be found at the website mentioned in paragraph 3 above.

ANALYSIS OF REPLIES

Analysis of the replies allows the following conclusions to be drawn:

i) With respect to question a), 73% of the countries that replied stated that they use the National Spectrum Management handbook (2005 edition).

ii) The Spectrum Monitoring handbook (2002 edition) is fairly extensively used. It is the most widely used handbook. Indeed, around 44 countries, i.e. 92% of those that replied indicated, that they use this handbook.

iii) The handbook Computer-aided Techniques for Spectrum Management (2005 edition) is little used (around 12% of ITU member administrations use it). This is the least used handbook.

iv) Report ITU-R SM.2012-2 (Economic Aspects of Spectrum Management) (2005 edition) meets a current need, but also a demand that was expressed by the developing countries in general.

The statistics show that 15% of ITU member administrations having replied to this question use this report.

Several countries indicated that they have taken steps to acquire the handbooks they do not already have.

3.3 Economic aspects

24 – Spectrum management costs

24.1 – What is the cost of providing national spectrum management services in your country (if there is more than one organization or agency responsible for spectrum management please give the total costs if this information is available)?

Breakdown by:

– *spectrum management (spectrum planning, coordination, monitoring)*

– *spectrum management (national assignments)*

– *government use*

– *non-government use*

_____ (Euros €) or _____ (US $)

Radio spectrum management bears a cost for the administrations. These costs are made up of staff wages and by the amount of investment made for computers and monitoring equipment. To know this cost can be very useful for the administrations, in order to help set the amount of spectrum usage fees.

More than half of administrations did not reply to this question. The spectrum management process can be very complex, and it then becomes difficult to ensure that the costs, in particular general overhead costs, are apportioned fairly between the licences for different types of spectrum use. The costs and charges of many administrations are open to public scrutiny (for example, by a national audit office) and the mechanisms for raising revenue to pay for spectrum management must be seen to ensure that fees charged to one type of licence use are not (accidentally) subsidizing the costs of another type of use. The situation is complicated further if more than one organization has responsibility for spectrum management or if the organization has responsibility for additional, No-spectrum management functions.

The replies range between two extremes: 200 million dollars and 1.5 million dollars.

24.2 – What is the source of the funding for these spectrum management services?

For the most part, administrations obtain their funds for spectrum management from spectrum usage fees. These fees can be given directly to the organization in charge of spectrum management or paid to the treasury, the spectrum management organizations being then funded by subventions from the general budget.

The replies to the questionnaire can be divided into three main groups depending on how the spectrum management function is funded:

– by a subvention from the general state budget;

– by the budget of the organization in charge of this function, regulatory authority or an agency attached to a ministry (either the financing comes from the general budget, or from the fees directly affected to this organization) or in some cases by the budget of the incumbent telecommunication operator (when the telecommunication sector reform is not fully achieved);

– and in a limited number of least developed countries, by donations from the World Bank or UNDP.

The replies show that there are no longer any cases of the above two individual categories being "mixed", as was the case in the previous period. In 2003, eight administrations (12%) mixed the two categories. This situation is certainly due to the creation of regulatory agencies following the State's withdrawal from the operation of telecommunications.

3.4 Problems encountered in national spectrum management

25 – Difficulties in connection with national spectrum management

This question recapitulates the problems identified by the replies to all the questions.

In analysing the replies to this question it can be noted that there is a variety of topics indicated.

The replies can be divided into a number of categories:

- Some administrations made comments to improve some situations
- Other administrations raised questions with a view to obtaining explanations
- In many cases it is indicated that a certain activity cannot or can hardly be performed because of:
  - lack of qualified staff;
  - lack of staff;
  - lack of equipment (both hardware and software).

The assistance of ITU is often asked for in order to resolve these problems.

25.1 – What are the legal, administrative, technical and financial difficulties encountered in carrying out the functions of national spectrum management in performing these services?

In the case of legislation one can find replies varying from not having a telecommunication law, the modification of the telecommunication law due to the development of new technology, difficulties encountered in updating obsolete telecommunication laws, to the difficulties in the development of secondary legislation in telecommunications.

25.2 – Use the following table to describe problems experienced by your administration in national spectrum management. This information will be used by ITU, in particular ITU-R Study Group 1 and ITU-D Study Group 2, to identify future areas of work, within the normal study programme, so that effort may be focused on the development of recommendations and reports in areas where assistance is most needed.

Question	Please describe the spectrum management problem associated with the Question and the type of assistance that could be provided by ITU
Q1	
Q2	
Q3	
Q4	
Q5	
Q6	
Q7	
Q8	
Q9	
Q10	
Q11	
Q12	
Q13	
Q14	
Q15	
Q16	

Q17	
Q18	
Q19	
Q20	
Q21	
Q22	
Q23	
Q24	
Q25	

In case of planning functions, many of the replies indicated that, due to the lack of sufficient hardware and software for a computerized frequency management system, this is a difficult problem for administrations.

In many cases it is indicated that, in order to perform monitoring, a substantial improvement of the facilities is required. In many cases, the lack of monitoring equipment is hampering the overall process of good spectrum management.

Some administrations also remarked that they are having difficulties in solving national interference problems, in overcoming interference from stations in neighbouring countries, but also in carrying out frequency coordination with such countries.

Some administrations would like to be provided with examples of procedures for coordinating GSM frequencies with neighbouring countries.

Part III: Information on the charges and fees to be paid for frequency use

ANALYSIS OF THE RESPONSES TO PART III OF THE QUESTIONNAIRE

Introduction

Resolution 9 (Rev.Doha, 2006), recognizing the successful development of the "Spectrum Fees Database" (SF Database) in response to Question 21/2 (Istanbul, 2002), now incorporated in Resolution 9, and the availability of guidelines and case studies to assist administrations in extracting information from the SF Database for use in the preparation of fee calculation models that suit their national requirements, resolves to continue the development of the SF Database and provide additional guidelines and case studies, based on practical experiences of administrations.

This part of the report presents the analysis of the replies to part III “Information on the charges and fees to be paid for frequency use” of the questionnaire

A separate publication on "Guidelines for the establishment of a coherent system of radio frequency usage fees" is available at the following address: http://web.itu.int/publ/D-STG-SG02.FEES-2010/en.

Part III of the questionnaire contained 18 questions: general questions (Q1 to Q3); questions relating to governmental users (Q4 to Q7); questions relating to non-governmental users (Q8 to Q17); and a question (Q18) on the frequency with which data should be updated. It also had two annexes containing:

– five tables to be completed for the purpose of indicating the parameters used in establishing fees;
– a glossary showing the meaning, for the purposes of the questionnaire, of some of the terms used.

Analysis of replies to part III of the questionnaire

4 Replies received

4.1 Number of replies

Sixty-five countries replied to all or part of part III of the questionnaire, as against 69 replies received in the previous study period (2002-2006) for Question 21/2.

Administrations were invited to reply directly online and their replies were then recorded in the ITU database. In the case of administrations unable to proceed in this manner, ITU recorded their replies in the database.

The distribution of replies among the five regions is as follows:

Region	Africa	Americas	Asia-Pacific	Europe and CIS	Arab countries	Total
Number of replies	15	10	10	23	7	65

4.2 Content of replies

Part III of the questionnaire contained 18 questions, as well as five tables, to be completed by administrations to indicate the parameters used for calculating fee amounts.

Some countries replied to all of the questions and completed the five tables, while others replied to only some of the questions or only partially completed the five tables.

4.3 Access to administrations' replies

All of the replies received from administrations by ITU are contained in the Spectrum Fees (SF) Database, located at: http://www.itu.int/ITU-D/CDS/gq/Resolution9/.

Administrations may, at any time, themselves correct or update their own information in the database, via http://fpweb/ITU-D/CDS/gq/generic/admin/login.asp and using their password.

Each administration has read-only access to the replies submitted by other administrations.

5 Analysis of replies

The analysis relates to the replies received by ITU by 10 February 2009. It will not go into the individual details specific to each country since all of the replies may be consulted in the SF Database.

5.1 General questions (Q1 to Q3)

5.1.1 Question Q1: *Are there any legal texts on the establishment of charges and fees relating to frequency usage?*

If yes, please indicate their references and the date on which they were last updated.

A total of 58 countries replied to this question.

The following tables summarize the replies received:

	Yes	No	Total
Existence of texts	56	2 (Americas: 1 Asia-Pacific: 1)	58

Existence of texts	Developed countries	Developing countries	Least developed countries	Row total
Yes	11	30	15	56
No	0	2	0	2
Column total	11	32	15	58

Existence of texts	Africa	Americas	Asia-Pacific	Europe and CIS	Arab countries	Row total
Yes	12	9	8	20	7	56
No	0	1	1	0	0	2
Column total	12	10	9	20	7	58

Countries having replied "yes" gave the text references or the web addresses at which the corresponding information can be found.

By comparison with the previous period, there has been a drop in the number of negative replies, with two (i.e. 3%) of the 58 countries having replied "no", whereas a total of ten out of 67 countries (i.e. 15%) replied "no" in the 2002-2006 study period.

5.1.2 Question Q2: *a) What procedure (regulatory, legislative, etc.) is used for reviewing and updating your charge and fee system?*

A total of 56 countries replied to this part of the question. The following tables summarize the replies received:

Existence of a procedure (regulatory, legislative, etc.) for reviewing and updating the charge and fee system	Yes	No	Total
Number of replies	54	2 (Americas: 1 Europe and CIS: 1)	56

Procedure for reviewing and updating the charge and fee system	**Africa**	**America's**	**Asia-Pacific**	**Europe and CIS**	**Arab countries**	**Row total**
Regulatory	8	4	6	8	5	31
Legislative	2	1	2	7	1	13
Regulatory + legislative	1	1	0	2	0	4
Other procedure	1	2	0	3	0	6
Column total	12	8	8	20	6	54

For the majority of countries having replied "yes", the procedure for reviewing and updating the charge and fee system is of a regulatory nature (government, ministry or regulator)..

b) Are reviews conducted at pre-established regular intervals?

A total of 51 countries replied to this part of the question. The following tables summarize the replies received:

	Yes	**No**	**Total**
Number of replies	14	37	51

Pre-established interval for reviews	**Africa**	**Americas**	**Asia-Pacific**	**Europe and CIS**	**Arab countries**	**Row total**
Yes	1	4	3	6	0	14
No	11	4	4	12	6	37
Column total	12	8	7	18	6	51

For countries having a pre-established interval for reviews, this interval ranges from six months to five years, the most common interval being one year (eight out of the 14 replies).

c) Does recourse to market mechanisms (auctions, calls for tenders) to screen applicants for spectrum access require that Parliament enact legislation, that the Government make a decision, or any other measure?

A total of 46 countries replied to this question. The following tables summarize the replies received:

Recourse to market mechanisms already provided for	Yes	No	Total
Number of replies	38	8	46

Recourse to market mechanisms	Africa	Americas	Asia-Pacific	Europe and CIS	Arab countries	Row total
Provided for by regulatory provision	3	3	3	9	1	19
Provided for by an Act	1	3	0	6	2	12
Provided for by other arrangements	2	1	1	2	1	7
Not yet provided for	4	1	1	1	1	8
Column total	10	8	5	18	5	46

A total of 38 administrations stated that recourse to market mechanisms is already provided for in their country, either through an Act or a government measure, or by other arrangements. Some administrations stated that, although it was already provided for in their country they had not yet practiced recourse to market mechanisms for frequency allocation.

Eight administrations replied that recourse to market mechanisms was not currently envisaged in their country.

5.1.3 Question 3: *Spectrum apportionment between users*

For the part of the spectrum between 29.7 MHz and 31 GHz, please indicate in the following table the spectrum portion held by each of the specified users in your country:

		% of spectrum held in 2000	% of spectrum held in 2006
Governmental users	**Broadcasters (TV and radio)**		
	Other entities		
Non-governmental users	**Telecommunication operators and users**		
	Private broadcasters (TV and radio)		
Total		**100 %**	**100 %**

A total of 28 administrations replied to the question by completing the above table either fully or partially.

By way of illustration, it is worth mentioning that 28 countries completed the part of the table concerning "Governmental users – Broadcasters (TV and radio)", with the following distribution:

	Part of the spectrum held by governmental users – broadcasters (TV and radio) = 0%	Part of the spectrum held by governmental users – broadcasters (TV and radio) where it is not zero	Total
Number of replies	15	13	28

The part of the spectrum held varies between 0.07 % and 50 %.

The 13 countries in which the part of the spectrum held by governmental users – broadcasters (TV and radio) is not zero are distributed among the following regions:

Region	Africa	Americas	Asia-Pacific	Europe and CIS	Arab countries	Total
Number of replies	4	2	3	2	2	13

5.2 Questions relating to governmental users

5.2.1 – Question Q4: *Do governmental frequency users pay charges and fees?*

A total of 54 countries replied to this question. The following tables summarize the replies received:

Payment of charges and fees	Yes	No	Total
Number of replies	29	25	54

Payment of charges and fees	Developed countries	Developing countries	Least developed countries	Row total
Replied "yes"	3	16	10	29
Replied "no"	6	14	5	25
Column total	9	30	15	54

Payment of charges and fees	Africa	Americas	Asia-Pacific	Europe and CIS	Arab countries	Row total
Replied "yes"	9	4	4	7	5	29
Replied "no"	5	5	2	12	1	25
Column total	14	9	6	19	6	54

In 29 countries (54% of the replies), governmental frequency users pay charges and fees.

5.2.2 Question Q5: *Please indicate the scales or calculation formulas that are used for determining charges and fees, specifying whether the charges and fees are payable annually or only once.*

Most of the countries having replied "yes" to question Q4 provided details of the rules, schedules or formulas for calculating the applicable charges and fees. That information is to be found in the SF Database.

5.2.3 Question Q6: *Please indicate in the following table the total amounts paid by governmental users.*

	Total amount of charges paid			**Total amount of fees paid**		
	2005	**2006**	**2007**	**2005**	**2006**	**2007**
Broadcasters (TV and radio)						
Other users						
Total						

A total of 12 countries completed the above table, either fully or partially. The corresponding information may be found in the SF Database. The breakdown of the 12 countries is as follows:

Region	**Africa**	**Americas**	**Asia-Pacific**	**Europe and CIS**	**Arab countries**	**Total**
Number of countries	4	3	1	2	2	12

Level of development	**Developed countries**	**Developing countries**	**Least developed countries**	**Total**
Number of countries	2	5	5	12

5.2.4 Question Q7: *To which institution(s) are the charges and fees collected from governmental users paid?*

A total of 28 countries replied to this question, with the following distribution:

Beneficiary entity	**State**	**Regulator or spectrum manager**	**State and regulator or spectrum manager**	**Total**
Number of replies	6	21	1	28

In 21 countries (i.e. 75% of the replies), the charges and fees are paid to the regulator or spectrum manager.

5.3 Questions relating to <u>non-governmental</u> users

5.3.1 Question Q8: *In addition to charges and fees relating to frequency use, does your administration require spectrum redeployment beneficiaries to contribute toward the redeployment costs?*

A total of 48 countries replied to this question. The following tables summarize the replies received:

Contributions to spectrum redeployment	Yes	No	Total
Number of replies	5	43	48

Contributions to spectrum redeployment	Developed countries	Developing countries	Least developed countries	Row total
Replied "yes"	2	2	1	5
Replied "no"	8	25	10	43
Column total	10	27	11	48

Contributions to spectrum redeployment	Africa	Americas	Asia-Pacific	Europe and CIS	Arab countries	Row total
Replied "yes"	1	1	0	2	1	5
Replied "no"	8	7	7	16	5	43
Column total	9	8	7	18	6	48

In five countries (i.e. 10% of the replies), contributions to spectrum redeployment are required from spectrum redeployment beneficiaries.

5.3.2 Question Q9: *Are any applications and/or services (as defined in the Radio Regulations) partially or completely exempted from the payment of charges and fees?*

If yes, please specify:

– *the applications and/or services concerned;*

– *their respective rate of exemption.*

A total of 51 countries replied to this question. The following tables summarize the replies received:

Partial or complete exemption from charges and fees for certain applications or services	Yes	No	Total
Number of replies	37	14	51

Partial or complete exemption from charges and fees for certain applications or services	Developed countries	Developing countries	Least developed countries	Row total
Replied "yes"	8	21	8	37
Replied "no"	2	7	5	14
Column total	10	28	13	51

Partial or complete exemption from charges and fees for certain applications or services	Africa	Americas	Asia-Pacific	Europe and CIS	Arab countries	Row total
Replied "yes"	7	8	4	13	5	37
Replied "no"	4	1	4	4	1	14
Column total	11	9	8	17	6	51

In 37 countries (i.e. 73% of the replies), certain applications or services are granted full or complete exemption from charges and fees.

Most of the countries having replied "yes" to this question provided the details requested. This information can be found in the SF Database.

The most commonly mentioned cases of partial or complete exemption relate in particular to low-range and low-power devices, scientific and medical equipment and applications, the amateur radio service and the broadcasting service.

5.3.3 – Question Q10: *Are any end users partially or wholly exempted from the payment of charges and fees?*

If yes, please specify:

– *the users concerned;*

– *their respective rate of exemption.*

A total of 50 countries replied to this question. The following tables summarize the replies received:

Partial or complete exemption from charges and fees for end users	Yes	No	Total
Number of replies	34	16	50

Partial or complete exemption from charges and fees for end users	Developed countries	Developing countries	Least developed countries	Row total
Replied "yes"	6	18	10	34
Replied "no"	4	9	3	16
Column total	10	27	13	50

Partial or complete exemption from charges and fees for end users	Africa	Americas	Asia-Pacific	Europe and CIS	Arab countries	Row total
Replied "yes"	7	7	6	10	4	34
Replied "no"	4	2	2	6	2	16
Column total	11	9	8	16	6	50

In 34 countries (i.e. 68% of the replies), certain end users enjoy partial or complete exemption from charges and fees.

Most of the countries having replied "yes" to this question provided the details requested. This information can be found in the SF Database.

The most commonly mentioned cases of partial or complete exemption relate in particular to entities responsible for defence, the police, rescue and assistance, embassies and diplomatic missions, and broadcasters.

5.3.4 Question Q11: *How are the charges to be paid by non-governmental users determined? Please indicate whether the charges are to be paid annually or only once.*

Please indicate in the following table the total amounts paid.

	Total amount of charges paid		
	2005	**2006**	**2007**
Telecommunication operators and users			
Private broadcasters (TV and radio)			

A total of 46 countries replied to the question, mentioning the way in which the charges to be paid by non-governmental users are determined. In some cases, the replies show that no real distinction is made between charges and fees.

The breakdown of the 46 replies is shown in the following table.

Payment of charges	**Africa**	**Americas**	**Asia-Pacific**	**Europe and CIS**	**Arab countries**	**Row total**
Only once	1	0	0	3	1	5
Annually	6	7	4	7	3	27
Once and then annually	1	0	2	1	1	5
Other payment arrangements	2	2	0	5	0	9
Column total	10	9	6	16	5	46

In 32 countries (i.e. 70% of the replies), the charges are to be paid each year.

The table relating to the total amount of charges paid was completed, either fully or partially, by 20 countries.

All of the information provided by administrations can be found in the SF Database.

5.3.5 Question Q12: *Please complete rows 1 to 21 of the five charts (A to E) in Annex 2 in the following manner.*

In each chart, for any given application:

For the variables (or parameters), please reply:

– *yes in the cells relating to the variables you use to set fees;*

– *no in the cells relating to the variables you do not use.*

This question, as well as questions Q13 to Q17, concern the general case of the application of fees to non-governmental users.

The tables (A, B, C, D and E) deal, respectively with the fixed service, mobile service, services by satellite, broadcasting service and other applications (see annex to the Questionnaire).

The number of countries having fully or partially completed tables A to E is shown below.

	Table A Fixed service	**Table B Mobile service**	**Table C Service by satellite**	**Table D Broadcasting service**	**Table E Other applications**
Number of countries	46	40	37	36	33

All of the replies, together with the corresponding statistics, can be found in the SF Database.

Annex 9 contains all of the statistics relating to the use of parameters by administrations to determine fees.

By way of illustration, for radio-relay systems and concerning the use of the various parameters, the main results are as follows, in decreasing order of number of user countries.

A total of 46 countries completed Table A. In the "Total" column, the percentage of countries using the corresponding parameter (number of users / number of replies) is shown in parentheses

Use of parameters by countries	**Developed countries**	**Developing countries**	**Least developed countries**	**Total**
Bandwidth	8	18	9	35 (76%)
Number of transmitting stations	6	13	9	28 (61%)
Number of channels	4	11	10	25 (54%)
Centre frequency	5	12	5	22 (48%)
Exclusive / shared band	3	10	9	22 (48%)
Duration of authorization	5	7	7	19 (41%)
Bit rate, capacity	0	6	6	12 (26%)
Number of receiving stations	1	5	6	12 (26%)
Transmitter power	1	6	3	10 (22%)
Geographic location	2	6	2	10 (22%)
Antenna height	0	2	3	5 (11%)
Degressivity	0	1	2	3 (6%)
Transmitting beam angle	0	1	2	3 (6%)

In the case of radio-relay systems, it will be seen that the three parameters most commonly used for determining fees are, in order, allocated bandwidth, number of transmitting stations and number of channels.

5.3.6 Question Q13: *Under "Methods used" (rows 20 and 21), please indicate, separately and as applicable, the formulas or scales used to determine the fees in question, including in each case a reference to the corresponding cell. Please also:*

– *explain the formulas and scales you use and how they are implemented;*

– *indicate whether the fees are to be paid annually or only once.*

Please specify in the following table the total amounts paid, other than those falling under § 3.3.3 (which relates to auctions and calls for tenders).

	Total amount of fees paid		
	2005	**2006**	**2007**
Telecommunication operators and users			
Private broadcasters (TV and radio)			

A total of 27 administrations replied to this question, either fully or partially, giving details of the formulas or scales used in determining fees.

It can be seen that the 27 administrations have adopted a wide range of solutions for determining the fees for each of the applications considered.

The table relating to the total amount of fees paid was completed, either fully or partially, by 17 countries.

As in the case of Question Q11, the replies in some cases show that no real distinction is made between charges and fees.

5.3.7 Question Q14: *For each of the cells in row 22, you are invited to provide information on the grounds for your choice of the variables used to set the fees and of the methods applied to determine the amount of those fees.*

The number of countries having replied to the question, which varies from table to table, is as follows.

	Table A	**Table B**	**Table C**	**Table D**	**Table E**
Number of countries having replied to the Table	17	16	11	9	9

Administrations' choice of variables corresponds to the following objectives:

Variable used to set the fees	**Objectives**
Bandwidth	Encourage economical use of the spectrum
Centre frequency	Encourage use of the least congested or highest frequency bands within the spectrum
Number of transmitting stations	Take account of spectrum and geographic occupancy
Surface area allocated	Take account of geographic occupancy
Duration of authorization	Enable collection of a global amount corresponding to the total

	length of time the spectrum is occupied. This also reduces the risk of frequency hoarding and non-use.
Bit rate	Enable a better comparison with wireline or fibre optic links.
High level of fees	Discourage small users and encourage them instead to use shared-resource networks.

5.3.8 Question Q15: *For each instance of recourse to market mechanisms, please specify:*

– *the application in question (GSM, IMT-2000, radio local loop, etc.) and year of operation;*

– *the procedure followed: auctions (row 23), call for tenders (row 24) or comparative selection (beauty contests) (row 25);*

– *the total financial amount collected and total bandwidth allocated (or total number of licences granted).*

The following tables show the number of instances in which administrations have had recourse to market mechanisms and the applications in question.

a) Wireless local loop

There were eight cases (i.e. 30% of the replies) of recourse to market mechanisms out of the 27 replies received for this table.

	Africa	**Americas**	**Asia-Pacific**	**Europe and CIS**	**Arab countries**	**Total**
a	1	0	0	1	0	2
cft	0	0	0	1	1	2
cs	1	0	0	2	1	4
Column total	2	0	0	4	2	8

e: auctions
cft: calls for tenders
sc: comparative selection

b) 2G mobile system

There were eight cases (i.e. 28% of the replies) of recourse to market mechanisms out of the 28 replies received for this table.

	Africa	**Americas**	**Asia-Pacific**	**Europe and CIS**	**Arab countries**	**Total**
a	0	0	0	0	1	1
cft	0	0	0	0	0	0
cs	1	0	0	4	2	7
Column total	1	0	0	4	3	8

e: auctions
cft: calls for tenders
sc: comparative selection

c) 3G mobile system

There were ten cases (i.e. 42% of the replies) of recourse to market mechanisms out of the 24 replies received for this table.

	Africa	Americas	Asia-Pacific	Europe and CIS	Arab countries	Total
a	0	0	0	1	1	2
cft	0	0	0	1	0	1
cs	0	0	0	5	2	7
Column total	0	0	0	7	3	10

e: auctions
cft: calls for tenders
sc: comparative selection

d) Broadcasting service

One country (Europe and CIS) has used auctions for the purpose of granting licences for digital terrestrial sound broadcasting.

One country (Europe and CIS) has used a call for tenders for the purpose of granting licences for analogue and digital terrestrial sound broadcasting and for analogue terrestrial television broadcasting.

5.3.9 Question Q16: *What are the advantages and disadvantages of the approaches currently used by your administration to establish the amount of frequency fees?*

A total of 27 countries replied to this question. The main replies are summarized below.

The most commonly mentioned **advantages** of the fee system are:

* Application of simple rules for establishing fees.
* Enables efficient spectrum management.
* Results in effective frequency usage.
* Enables account to be taken of all the technologies.
* Is conducive to the introduction of new technologies.

The most commonly mentioned **disadvantages** of the fee system are:

– Does not take account of the administrative costs of spectrum management.
– The fees are too low by comparison with the corresponding amounts in neighbouring countries.
– Does not take account of the spectrum occupancy situation by region.
– Does not take account of spectrum value.
– Not suited or not applicable to new applications.
– There is no link between the fee levels and the quantity of spectrum allocated.

5.3.10 Question Q17: *To which institution(s) are the frequency charges and fees collected from non-governmental users paid?*

A total of 36 countries replied to this question, with the following distribution:

Beneficiary entity	State	Regulator or spectrum manager	State and regulator or spectrum manager	Total
Number of replies	12	23	1	36

In 23 countries (i.e. 64% of the replies), the charges and fees are paid to the regulator or spectrum manager.

5.3.11 Question Q18: *How often would you consider it most appropriate to update the report and the SF Database on frequency charges and fees: every two, three, four, ... years?*

To that end, would you be willing hereafter to complete a similar questionnaire at the regular interval you have indicated above?

A total of 40 countries replied to this question, with the following distribution:

Update interval	2 years	3 years	4 years	5 years	No opinion	Total
Number of replies	10	11	11	3	5	40

A total of 22 countries (i.e. 55% of the replies) are in favour of the report being updated every three to four years.

Thirty-six administrations stated that they would be willing to complete a similar questionnaire at a later stage.

6 Spectrum Fees (SF) Database

Introduction

Within the framework of Question 21/2, a database was created by the BDT secretariat, in consultation with the Joint Group on Resolution 9, during the 2002-2006 study period, to enable analysis of the information provided by administrations in response to the questionnaire. The database has been updated during the present study period.

The database allows for viewing of the variables used in establishing frequency usage rights and the scales and formulas used, as well as the replies to all of the questions in parts II and III of the questionnaire. The database is complemented by this report, which summarizes the analyses and statistics drawn up on the basis of the replies received from administrations.

The database may be freely accessed at: http://www.itu.int/ITU-D/CDS/gq/Resolution9/.

However, modification and update rights for the data relating to any given country are restricted solely to the administration of that country. No administration can modify data belonging to any other administration.

To this end, BDT has provided a password for use by each administration, which can then change it. Administrations will be asked to provide BDT with a contact to whom the password can be sent.

The database enables the user to view data relating to the calculation of frequency usage fees. This data is drawn from the replies to the questionnaire on the implementation of Resolution 9 (Rev.Doha, 2006), sent to administrations by joint administrative circular CA/08 (BDT) and CA/167 (BR), dated 14 May 2007.

The home page has four columns:

1) The first column is for viewing the responses to the general questions (Q1 to Q11) in part III of the questionnaire by:
   - region;
   - country;
   - chart (radio service);
   - application;
   - variable.

   A scroll button is used to make one or more choices, before clicking on "Display".

2) The second column is for viewing the data relating to calculation of frequency usage fees by:
   - region;
   - country;
   - chart (radio service);
   - application;
   - variable.

   A scroll button is used to make one or more choices, before clicking on "Display".

3) The third column ("scales/formulas") is used for viewing the calculation formulas or scales that are applied, by:
   - region;
   - country;
   - chart (radio service).

   A scroll button is used to make one or more choices, before clicking on "Display".

4) The fourth column is for:
   - obtaining the "cross-variable count", i.e. the number of countries using a particular variable (chosen from a drop-down list) for a given application (chosen in the same way); and
   - displaying statistics and diagrams showing the rate of use of variables broken down by region, radio service and applications.

   A scroll button is used to make one or more choices, before clicking on "Statistics on Chart/Region".

Modification and update of data by administration:

To do this, the user, who needs to have a password, clicks on the "Identification page" button at the bottom of the home page. This will open a new page where the name of the country and the password must be entered.

Annex 1

Member States Responding to Part I of the Questionnaire

Fifty-four Member States provided responses to Part I of the Questionnaire. Grouped by region, they include:

Americas (6)			
	BELIZE BRAZIL (Federative Republic of)	CANADA NICARAGUA	PARAGUAY (Republic of) PERU
Europe and CIS (21)			
	ALBANIA (Republic of) AUSTRIA CYPRUS (Republic of) ESTONIA (Republic of) FINLAND FRANCE GEORGIA HUNGARY (Republic of)	IRELAND KYRGYZ REPUBLIC LITHUANIA (Republic of) LUXEMBOURG MALTA MOLDOVA (Republic of) MONTENEGRO POLAND (Republic of)	PORTUGAL SPAIN SWITZERLAND (Confederation of) TURKEY UZBEKISTAN (Republic of)
Africa (14)			
	BURKINA FASO BURUNDI (Republic of) CAPE VERDE (Republic of) CENTRAL AFRICAN REPUBLIC CÔTE d'IVOIRE (Republic of)	DEMOCRATIC REPUBLIC of the CONGO LESOTHO (Kingdom of) MALI (Republic of) MAURITIUS (Republic of) NIGER (Republic of the)	SENEGAL (Republic of) SEYCHELLES (Republic of) TANZANIA (United Republic of) TOGOLESE REPUBLIC
Arab States (6)			
	BAHRAIN (Kingdom of) EGYPT (Arab Republic of)	LEBANON MAURITANIA (Islamic Republic of)	OMAN (Sultanate of) UNITED ARAB EMIRATES
Asia and Pacific (7)			
	BHUTAN (Kingdom of) IRAN (Islamic Republic of) KOREA (Republic of)	MALAYSIA PAKISTAN (Islamic Republic of) SAMOA (Independent State of)	VIET NAM (Socialist Republic of)

Annex 2

Characterization of Part I Responses

The table below is intended to characterize the frequency allocation tables provided in the responses to Part I of the Questionnaire.

The first column contains the official designation of the Member State, along with the language used in the response.

To the extent that the Member State provided such information, the second column shows the website address and the name and address of a designated focal point. Individuals listed are designated focal points only for information relevant to the WTDC Resolution 9 Questionnaire for Stage 3 (ITU-D Administrative Circular CA/08 and ITU-R Administrative Circular CA/167). Requests for other information should be directed to the official ITU contact for that Member State, as listed in the ITU Global Directory.

The third column indicates whether the response included information about sub-regional allocations applicable to the Member State, and, if so, which sub-regional allocations.

Most Member States responding have established national frequency allocations, as indicated in the fourth column, though some use the table of frequency allocations from the Radio Regulations, or maintain national allocations that are nearly identical to those of the ITU.

As the fifth column shows, many of the responses went beyond frequency allocations to include specific applications within a radio service for selected frequency bands.

Finally, the sixth column indicates remarks or additional information provided in the response, often in the form of national footnotes to the allocation table, or an indication of whether a particular frequency band is used for civil or military applications, or both.

Characterization of Part I Responses

MEMBER STATE Language	Website/contact point	Sub-Regional Allocations	National Allocations	Applications	Remarks
ALBANIA (Republic of) *English and Albanian*	None provided	European Common Allocation	Yes	Yes, detailed	Yes, detailed
AUSTRIA *German*	None provided	No	Yes	Yes	Conditions for use, remarks and radio interface
BAHRAIN (Kingdom of) *English*	None provided	No	Noted as following Region 1 allocations	Some	Nearly all bands noted as under review
BELIZE *English*	None provided	No	Yes	Yes	No
BHUTAN (Kingdom of) *English*	None provided	No	No	Limited examples	No
BRAZIL (Federative Republic of) *English*	None provided	No	Yes	Yes	Yes
BURKINA FASO *French*	None provided	No	Yes	Yes; some references to European recommendations or decisions	No

MEMBER STATE Language	Website/contact point	Sub-Regional Allocations	National Allocations	Applications	Remarks
BURUNDI (Republic of) *French*	Mr. Deogratias BIZINDAVYI Agency for Regulation and Control of Telecommunications (ARCT) deobizi@yahoo.fr	No	Yes	No	No
CANADA *English*	Spectrum management and telecommunications: strategis.gc.ca/spectrum Table of frequency allocations: www.ic.gc.ca/eic/site/smtgst.nsf/eng/sf08531.html Canada Gazette: http://canadagazette.gc.ca/publication-e.html#i5	No	Yes	No	Footnotes
CAPE VERDE (Republic of) *French*	None provided	No	Yes	Some fixed service bands	No
CENTRAL AFRICAN REPUBLIC *French*	Mr. Ferdinand BOALYO-FOUNGA Telecommunications Regulatory Agency boalyof@yahoo.fr	No	Yes	Detailed	Some references to European recommendations
CÔTE d'IVOIRE (Republic of) *French*	Telecommunications Agency (ATCI): www.atci.ci	No	Yes	Yes	No
CYPRUS (Republic of) *English*	None provided	European Common Allocation	Yes	Detailed	Detailed
DEMOCRATIC REPUBLIC of the CONGO *French*	None provided	No	Yes	Yes	No
EGYPT (Arab Republic of) *English*	None provided	No	Yes	Yes	No

MEMBER STATE Language	Website/contact point	Sub-Regional Allocations	National Allocations	Applications	Remarks
ESTONIA (Republic of) *English*	Estonian Technical Surveillance Authority www.tja.ee Arvo RAMMUS, Adviser Estonian National Communications Board Adala 210614, TALLINN, Estonia Tel.: +372 693 1153 Fax: +372 693 1155 arvo.rammus@sa.ee	No	www.tja.ee	No	No
FINLAND English	Finnish Communications Regulatory Authority www.ficora.fi	No	.pdf file available at www.ficora.fi as annex to Regulation 4	Yes, detailed	Yes, detailed
FRANCE *French*	National Frequency Agency www.anfr.fr Information on national table of frequency allocations (NFTA): tnrbf@anfr.fr Other information: info@anfr.fr	European Common Allocation www.efis.dk	Yes	Yes	Yes
GEORGIA *English*	None provided	No	Yes	Yes	Distinguishes current and future use of applications
HUNGARY (Republic of) *English*	None provided	No	Yes	No	No
IRAN (Islamic Republic of) *English*	None provided	No	Yes	Yes	Yes
IRELAND *English*	Commission for Communications Regulation www.comreg.ie Table of Frequency Allocations www.comreg.ie/_fileupload/publications/ComReg0477R_39076827.pdf Spectrum Strategy www.comreg.ie/_fileupload/publications/ComReg0572.pdf	No	Yes	Yes	Notes and future developments

MEMBER STATE Language	Website/contact point	Sub-Regional Allocations	National Allocations	Applications	Remarks
KOREA (Republic of) *English*	None provided	No	Yes	Yes	Yes
KYRGYZ REPUBLIC *English*	None provided	No	Yes	No	No
LEBANON *English*	Mohamad AYOUB Senior Spectrum Management Expert Republic of Lebanon - Telecommunications Regulatory Authority Marfaa 200 Building - Beirut Central District BEIRUT, Lebanon +961 1 964300 +961 1 964341 (fax) mohamad.ayoub@tra.gov.lb	No	Yes	Yes	Identifies bands to be refarmed
LESOTHO (Kingdom of) *English*	None provided	No	Yes	Yes	No
LITHUANIA (Republic of) *English*	None provided	No	Yes	Yes	Strategy for some bands
LUXEMBOURG *French*	Luxembourg Regulatory Institute www.ilr.public.lu/telecommunications/index.html Mr. Roland Thurmes roland.thurmes@ilr.lu	European Common Allocation	Yes	Yes	Distinguishes civil, military and shared
MALAYSIA *English*	Malaysian Communications and Multimedia Commission 63000 Cyberjaya SELANGOR DARUL EHSAN +603 8688 8000 +603 8688 1000 (fax) www.mcmc.gov.my spectrumplan@cmc.gov.my	No	Yes	Yes	National footnotes

MEMBER STATE Language	Website/contact point	Sub-Regional Allocations	National Allocations	Applications	Remarks
MALI (Republic of) *French*	Mali Telecommunications Society (SOTELMA): www.sotelma.ml Mr. Mamadou OUATTARA ouattm2001@yahoo.fr	No	Yes	No	No
MALTA *English*	Malta Communications Authority www.mca.org.mt Adrian GALEA Manager, Spectrum Management Malta Communications Authority Valletta Waterfront, Pinto Wharf VALLETTA, Malta +356 21336840 +356 21336846 (fax) agalea@mca.org.mt	No	No	No	No
MAURITANIA (Islamic Republic of) *French*	None provided	No	Yes	Yes, including a column showing major use in Europe	Distinguishes civil and military use
MAURITIUS (Republic of) *English*	Information and Communication Technologies Authority of Mauritius (ICT Authority): www.icta.mu Dr. Krishna OOLUN Executive Director ICT Authority Level 12. The Celicourt Sir Celicourt Antelme Street PORT LOUIS, Mauritius +230 211 5333 +230 211 9444 (fax) oolun@icta.mu	No	Yes	Yes	No
MOLDOVA (Republic of) *English*	State Commission on Radio Frequencies www.mdi.gov.md	No	Yes	Yes	National footnotes; distinguishes governmental, non-governmen-tal and shared

MEMBER STATE Language	Website/contact point	Sub-Regional Allocations	National Allocations	Applications	Remarks
MONTENEGRO *English*	None provided	No	Yes	Yes	National and European footnotes
NICARAGUA *Spanish*	Nicaraguan Institute of Telecommunications and Posts (TELCOR): www.telcor.gob.ni	No	Yes	Yes with frequencies plans	No
NIGER (Republic of the) *French*	Multi-sector Regulation Authority: www.arm-niger.org	No	Yes	Yes	Yes
OMAN (Sultanate of) *English*	None provided	No	Yes	No	Distinguishes civil, military and shared
PAKISTAN (Islamic Republic of) *English*	None provided	No	Yes	No	No
PARAGUAY (Republic of) *Spanish*	National Telecommunications Commission (CONATEL): www.conatel.gov.py	No	Yes	Yes with frequency plans	No
PERU *Spanish*	Ministry of Transport and Communications (MTC): www.mtc.gob.pe Organism Supervisor of the Private Investment (OSIPTEL): www.osiptel.gob.pe	No	Yes	Some in fixed service bands	No
POLAND (Republic of) *English*	None provided	No	Yes	Yes	Yes
PORTUGAL *English*	National Communications Authority (ANACOM): www.anacom.pt info@anacom.pt National Frequency Allocation Plan: www.anacom.pt/template12.jsp?categoryId=189822	No	No	Yes	Yes, including reference to European regulations

MEMBER STATE Language	Website/contact point	Sub-Regional Allocations	National Allocations	Applications	Remarks
SAMOA (Independent State of) *English*	John Morgan, Regulator Office of the Regulator Private Bag APIA, Samoa +685 30282 +685 30281 (fax) admin@regulator.gov.ws	No	Yes	Yes	No
SENEGAL (Republic of) *French*	Telecommunications and Posts Regulatory Agency (ARTP): www.artp-senegal.org	No	Yes	Yes	Yes, including frequency plans
SEYCHELLES (Republic of) *English*	None	No	No	Yes	Yes
SPAIN *Spanish*	Secretary of State of Telecommunications and for the Information Society: www.mityc.es/telecomunicaciones Telecommunications Market Commission (CMT): www.cmt.es	European Common Allocation	Yes	Yes	Yes
SWITZERLAND (Confederation of) *English*	None provided	No	Yes	Yes	Plans for some bands
TANZANIA (United Republic of) *English*	None provided	No	Yes	Yes	Yes
TOGOLESE REPUBLIC *French*	Posts and Telecommunications Regulatory Authority (ART&P): www.artp.tg	No	Yes	Yes	No
TURKEY *English*	None provided	No	Yes	Yes	No

MEMBER STATE Language	Website/contact point	Sub-Regional Allocations	National Allocations	Applications	Remarks
UNITED ARAB EMIRATES *English*	Telecommunications Regulatory Authority (ART&P): www.tra.ae info@tra.ae	No	Yes	Yes	National footnotes
UZBEKISTAN (Republic of) *English*	None provided	No	Yes	No	No
VIET NAM (Socialist Republic of) *English*	None provided	No	Yes	No	National footnotes

Annex 3

Extract from the response of Belize

FREQUENCY BANDS – MHz	SERVICE AND REMARKS
4 200.000-4 400.000	Aeronautical Radionavigation
4 400.000-4 500.000	Fixed and Mobile
4 500.000-4 800.000	Fixed and Mobile Fixed Satellite s-e
4 800.000-5 725.000	Reserved. In accordance with ITU Radio Regulations/CITEL Americas Regional Plan
5 725.000-5 850.000	Fixed and Mobile – Reserved
5 850.000-5 925.000	Fixed and Mobile Service Fixed Satellite Service e-s
5 925.000-6 300.000	Fixed Service Fixed Satellite Service e-s
6 300.000-7 100.000	Fixed Service Reserved Fixed Satellite e-s
7 100.000-7 125.000	Fixed and Mobile Service
7 125.000-7 425.000	Fixed Service – Reserved
7 425.000-7 725.000	Fixed Service – Reserved

Annex 4

Extract from the response of the Republic of Seychelles

International allocations to services 2 900 MHz - 31 GHz			National		
Region 1	**Region 2**	**Region 3**	**National allocations**	**Current uses and remarks**	**Strategy**
2 900-3 100 RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427	**2 900-3 100** RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427	**2 900-3 100** RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427	As per Article 5 of ITU-RR Edition of 2004 for this column (i.e. 2 900 MHz – 31 GHz)		
3 100-3 300 RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149 5.428	**3 100-3 300** RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149 5.428	**3 100-3 300** RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149 5.428			
3 300-3 400 RADIOLOCATION 5.149 5.429 5.430	**3 300-3 400** RADIOLOCATION Amateur Fixed Mobile 5.149 5.430	**3 300-3 400** RADIOLOCATION Amateur 5.149 5.429			

International allocations to services 2 900 MHz - 31 GHz			National		
Region 1	**Region 2**	**Region 3**	**National allocations**	**Current uses and remarks**	**Strategy**
3 400-3 600 FIXED FIXED-SATELLITE (space-to-Earth) Mobile Radiolocation 5.431	**3 400-3 500** FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile Radiolocation 5.433 5.282 5.432	**3 400-3 500** FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile Radiolocation 5.433 5.282 5.432			Fixed Broadband Wireless Access (FBWA) including Nomadic BWA (3 400-3 600 MHz)
	3 500-3 700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433 5.435	**3 500-3 700** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433 5.435			FBWA including NBWA (3 400-3 600 MHz)
3 600-4 200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	**3 700-4 200** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	**3 700-4 200** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile		VSAT Earth Stations (C-Band)	
4 200-4 400 AERONAUTICAL RADIONAVIGATION 5.438 5.439 5.440	**4 200-4 400** AERONAUTICAL RADIONAVIGATION 5.438 5.439 5.440	**4 200-4 400** AERONAUTICAL RADIONAVIGATION 5.438 5.439 5.440			
4 400-4 500 FIXED MOBILE	**4 400-4 500** FIXED MOBILE	**4 400-4 500** FIXED MOBILE		Frequency assignments for Fixed services as per ITU-R F.1099-3	

International allocations to services 2 900 MHz - 31 GHz			National		
Region 1	**Region 2**	**Region 3**	**National allocations**	**Current uses and remarks**	**Strategy**
4 500-4 800 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE	**4 500-4 800** FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE	**4 500-4 800** FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE		Frequency assignments for Fixed services as per ITU-R F.1099-3	
4 800-4 990 FIXED MOBILE 5.442 Radio astronomy 5.149 5.339 5.443	**4 800-4 990** FIXED MOBILE 5.442 Radio astronomy 5.149 5.339 5.443	**4 800-4 990** FIXED MOBILE 5.442 Radio astronomy 5.149 5.339 5.443		Frequency assignments for Fixed services as per ITU-R F.1099-3	4.9 GHz band (4 940-4 990 MHz) for public safety purposes as per FCC Part 90
4 990-5 000 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149	**4 990-5 000** FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149	**4 990-5 000** FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149		Frequency assignments for Fixed services as per ITU-R F.1099-3	
5 000-5 010 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367	**5 000-5 010** AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367	**5 000-5 010** AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367			

Annex 5

Extract from the response of the Sultanate of Oman

15.43 – 17.3 GHz

ALLOCATION TO SERVICES			
REGION 1	**REGION 2**	**REGION 3**	**SULTANATE OF OMAN**
15.43-15.63	FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C		**15.43-15.63 (CIVIL)** FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C
15.63-15.7	AERONAUTICAL RADIONAVIGATION 5.511D		**15.63-15.7 (CIVIL)** AERONAUTICAL RADIONAVIGATION 5.511D
15.7-16.6	RADIOLOCATION 5.512 5.513		**15.7-16.6 (MILITARY)** FIXED MOBILE RADIOLOCATION
16.6-17.1	RADIOLOCATION Space research (deep space) (Earth-to-space) 5.512 5.513		**16.6-17.1 (MILITARY)** FIXED MOBILE RADIOLOCATION Space research (deep space) (Earth-to-space)
17.1-17.2	RADIOLOCATION 5.512 5.513		**17.1-17.2 (SHARED)** FIXED MOBILE RADIOLOCATION
17.2-17.3	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513 5.513A		**17.2-17.3 (SHARED)** EARTH EXPLORATION- FIXED MOBILE RADIOLOCATION SPACE RESEARCH (active) 5.513A

Annex 6

Extract from the response of the Republic of Moldova

Region 1	National allocation		
Frequency band – services – footnotes	**Frequency band - services**	**Footnotes**	**Usage**
5 570-5 650 MHz MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.450, 5.451, 5.452	**5 570-5 650 MHz** MARITIME RADIONAVIGATION MOBILE except aeronautical mobile RADIOLOCATION	5.446A, 5.450, 5.450A, 5.450B, 5.451, 5.452, RN035	NG
5 650-5 725 MHz RADIOLOCATION MOBILE except aeronautical mobile 5.446A 5.450A Amateur Space Research (deep space) 5.282, 5.451, 5.453, 5.454, 5.455	**5 650-5 670 MHz** RADIOLOCATION MOBILE except aeronautical mobile Amateur Space Research (deep space) 5 670-5 725 MHz FIXED RADIOLOCATION MOBILE except aeronautical mobile Amateur Space Research (deep space)	5.282, 5.455, 5.446A 5.450A RN035	P NG
5 725-5 830 MHz FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur 5.150, 5.451, 5.453, 5.455, 5.456	**5 725-5 830 MHz** FIXED-SATELLITE (Earth-to-space) RADIOLOCATION FIXED Amateur	5.150, 5.455 RN035	NG

National Table of Frequency Allocations consists of four columns:

Column 1 – International allocation for Region 1. Frequency band – Services – Footnotes. It contains allocation of frequency bands for different radiocommunication services for Region 1 countries. Contents of this column is identical to the column 1 of the Table of Frequency Allocations of Article 5 of the Radio Regulations.

Columns, which correspond to national allocation, have the following contents:

Column 2 – Frequency Band – Services. It contains allocation of frequency bands for different radiocommunications services in Moldova. This allocation corresponds to provisions of Article 5 of the Radio Regulations.

Column 3 – Footnotes. This column contains reference numbers of footnotes under which corresponding service is permitted to be used in Moldova. Reference numbers have the following meaning:

- numbers of type 5.317A correspond to numbers under which corresponding footnotes could be found in Article 5 of the Radio Regulations. Texts of those footnotes are shown in Annex 1 to the National Table of Frequency Allocations
- three digit numbers followed by letters RN, correspond to national footnotes which describe national usage of specific frequency band. Texts of those footnotes are shown in Annex 2 to the National Table of Frequency Allocations

Footnotes are integral part of the NTFA.

Column 4 – Usage. It contains mode of use of frequency bands in Moldova. The meaning of remarks in this column is as follows:

- **G** – means that corresponding band is allocated exclusively for the governmental purposes (defense, national security, governmental communications, civil protection, police). Frequencies in those bands are assigned by interested entities;
- **NG** – means that corresponding band is allocated exclusively for the non-governmental purposes. Frequencies in those bands are assigned by the State Communication Inspection.
- **P** – means that corresponding band is shared by governmental and non-governmental users. Frequencies in those bands are assigned by interested parties and the State Communication Inspection in conformity with Procedure on mode of allocation of frequency bands and frequency assignments.

National footnotes

RN035	It is permitted to use short range devices on a secondary basis in the bands and with technical parameters indicated in corresponding annexes of CEPT Recommendation T/R 70-03

Annex 7

Extract from the response of the Republic of Cyprus

Frequency Band	RR Region 1 Allocation	European Common Allocation (ERC Report 25)	National Allocation	National Usage	Remarks
9 500-9 800 MHz	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.476A EU2 EU24	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.476A EU2 EU24	1. Civil and non-civil aeronautical radionavigation systems e.g. airfield approach. 2. Motion sensors 3. Shipborne, land and airborne surveillance and weapon radars. 4. Spaceborne active sensors	2. Motion sensors: EN 300 440, ERC REC 70-03
9 800-10 000 MHz	RADIOLOCATION Fixed 5.477 5.478 5.479	RADIOLOCATION SPACE RESEARCH 5.479 EU2 EU24	RADIOLOCATION SPACE RESEARCH 5.479 EU2 EU24	1. Civil and non-civil aeronautical radionavigation systems e.g. airfield approach. 2. Motion sensors 3. Shipborne, land and airborne surveillance and weapon radars.	2. Motion sensors: EN 300 440, ERC REC 70-03 Within the band 9 500-9 975 MHz

Frequency Band	RR Region 1 Allocation	European Common Allocation (ERC Report 25)	National Allocation	National Usage	Remarks
10-10.15 GHz	FIXED MOBILE RADIOLOCATION Amateur 5.479	FIXED MOBILE RADIOLOCATION Amateur 5.479 EU2	FIXED MOBILE RADIOLOCATION Amateur 5.479 EU2	1. Amateur applications 2. Non-civil radar 3. SAP/SAB applications EU17A	1. Amateur applications: EN 301783 2. Non-civil radar 3. SAP/SAB applications: ERC REC 25-10
10.15-10.30 GHz	FIXED MOBILE RADIOLOCATION Amateur	FIXED MOBILE RADIOLOCATION Amateur EU2	FIXED MOBILE RADIOLOCATION Amateur EU2	1. Amateur applications 2. Civil and government use radars 3. Fixed links 4. SAP/SAB applications EU17A	1. Amateur applications: EN 301 783 2. Civil and government use radars: Low power radars in certain subbands 3. Fixed links: EN 301 751, ERC REC 12-05 4. SAP/SAB applications: ERC REC 25-10
10.30-10.45 GHz	FIXED MOBILE RADIOLOCATION Amateur	FIXED RADIOLOCATION Amateur Mobile EU2 EU17	FIXED RADIOLOCATION Amateur Mobile EU2 EU17	1. Amateur applications 2. Civil and government use radars 3. SAP/SAB applications EU17A	1. Amateur applications: EN 301 783 2. Civil and government use radars: Low power radars in certain subbands 3. SAP/SAB applications: ERC REC 25-10

Annex 8

Part II: National spectrum management

TABLE OF STATISTICS OF REPLIES

TABLE OF STATISTICS SHOWING ALL REPLIES PER PART AND PER REGION

Region	Part A	Part B	Part C	Part D
	Number of replies received	Number of replies received	Number of replies received	Number of replies received
Africa	16	14	11	12
Americas	11	10	9	7
Arab States	9	6	6	6
Asia-Pacific	11	3	3	2
Europe and CIS	27	22	19	11
TOTAL	74	70	58	44

Question 1 – Who owns the spectrum?

TABLE 1

Region	Number of replies received	Ownership of spectrum	Ownership of spectrum
		State or government	Entity other than State
Africa	16	16	0
Americas	11	11	0
Arab States	9	9	0
Asia-Pacific	11	10	1
Europe and CIS	27	27	0
TOTAL	74	73	1

Question 2 – What legal or regulatory texts govern your national spectrum management processes? (Include the promulgation dates and the date of the most recent update.)

TABLE 2

Region	Number of replies received	Percentage of replies
Africa	16	22.53%
Americas	11	15.50%
Arab States	9	12.67%
Asia-Pacific	9	12.67%
Europe and CIS	26	55.33%
TOTAL	71	100%

Question 3 – Are amendments planned to these texts? : Yes _____ No _____

If YES, when? _____

TABLE 3

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Replies/level of development					
				Developed		Developing		Least developed	
				Yes	No	Yes	No	Yes	No
Africa	16	14	2	0	0	3	1	11	1
Americas	10	10	0	0	0	10	0	0	0
Arab States	8	5	3	0	0	4	3	1	0
Asia-Pacific	9	1	8	0	0	1	6	0	2
Europe and CIS	27	20	7	7	5	13	2	0	0
TOTAL	70	50	20	7	5	31	12	12	3

Question 4 – Are regulations and procedures for spectrum management (e.g. radio services, licence requirements) publicly available in your country? Yes _____ No _____

TABLE 4

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Replies/level of development					
				Developed		Developing		Least developed	
				Yes	No	Yes	No	Yes	No
Africa	15	14	1	0	0	4	0	10	1
Americas	11	11	0	0	0	11	0	0	0
Arab States	9	8	1	0	0	7	0	1	1
Asia-Pacific	10	9	1	0	0	7	1	2	0
Europe and CIS	24	24	0	12	0	12	0	0	0
TOTAL	69	66	3	12	0	41	1	13	2

Question 5 – Is there a national table of frequency allocations? Yes ___ No___

TABLE 5

Region	Number of replies received	Number of replies "Yes"	Percentage of replies "Yes"	Number of replies "No"	Replies/level of development					
					Developed		Developing		Least developed	
					Yes	No	Yes	No	Yes	No
Africa	16	14	87.5%	2	0	0	4	0	10	2
Americas	11	10	91%	1	0	0	10	1	0	0
Arab States	9	8	89%	1	0	0	6	1	2	0
Asia-Pacific	10	9	90%	1	0	0	7	1	2	0
Europe and CIS	27	27	100%	0	12	0	15	0	0	0
TOTAL	73	68	93%	5	12	0	42	3	14	2

Is it published? Yes_____ No_____

TABLE 6

Region	Number of replies received	Number of replies "Yes"	Percentage of replies "Yes"	Number of replies "No"	Replies/level of development					
					Developed		Developing		Least developed	
					Yes	No	Yes	No	Yes	No
Africa	14	9	64%	5	0	0	4	0	5	5
Americas	11	9	82%	2	0	0	9	2	0	0
Arab States	8	7	87.5%	1	0	0	7	0	0	1
Asia-Pacific	10	7	70%	3	0	0	5	3	2	0
Europe and CIS	27	26	96%	1	11	1	15	0	0	0
TOTAL	70	58	83%	12	11	1	40	5	7	6

Question 6.1 – Has there been any spectrum redeployment in your country? Yes___ No____

TABLE 7

Region	Number of replies received	Number of replies "Yes"	Percentage of replies "Yes"	Number of replies "No"	Percentage of replies "No"	Replies/level of development		
						Developed	Developing	Least developed
Africa	16	5	31%	11	69%	Yes=0 No=0	Yes=2 No=2	Yes=3 No=9
Americas	11	4	36%	7	64%	Yes=0 No=0	Yes=4 No=7	Yes=0 No=0
Arab States	9	6	67%	3	33%	Yes=0 No=0	Yes=6 No=1	Yes=0 No=2
Asia-Pacific	9	6	67%	3	33%	Yes=0 No=0	Yes=5 No=2	Yes=1 No=1
Europe and CIS	25	18	72%	7	28%	Yes=7 No=4	Yes=11 No=3	Yes=0 No=0
TOTAL	70	39	56%	31	44%	Yes=7 No=4	Yes=28 No=15	Yes=4 No=12

Question 6.2 – If NO, has a decision to proceed with spectrum redeployment been taken in your country? Yes ___ No ___

TABLE 8

Region	Number of replies received	Number of replies "Yes"	Percentage of replies "Yes"	Number of replies "No"	Percentage of replies "No"	Replies/level of development		
						Developed	Developing	Least developed
Africa	11	4	36%	7	64%	Yes=0 No=0	Yes=1 No=1	Yes=3 No=6
Americas	7	2	29%	5	71%	Yes=0 No=0	Yes=2 No=5	Yes=0 No=0
Arab States	5	3	60%	2	40%	Yes=0 No=0	Yes=3 No=0	Yes=0 No=2
Asia-Pacific	5	3	60%	2	40%	Yes=0 No=0	Yes=1 No=2	Yes=2 No=0
Europe and CIS	8	2	25%	6	75%	Yes=1 No=3	Yes=1 No=3	Yes=0 No=0
TOTAL	36	14	39%	22	61%	Yes=1 No=3	Yes=8 No=11	Yes=5 No=8

Question 6.3 – If YES, has a redeployment method been defined? Yes _____ No _____

TABLE 9

Region	Number of replies received	Number of replies "Yes"	Percentage of replies "Yes"	Number of replies "No"	Percentage of replies "No"	Replies/level of development		
						Developed	Developing	Least developed
Africa	11	6	55%	5	45%	Yes=0 No=0	Yes=2 No=1	Yes=4 No=4
Americas	5	3	60%	2	40%	Yes=1 No=0	Yes=3 No=2	Yes=0 No=0
Arab States	7	4	57%	3	43%	Yes=0 No=0	Yes=4 No=3	Yes=0 No=0
Asia-Pacific	6	4	67%	2	33%	Yes=0 No=0	Yes=4 No=0	Yes=0 No=2
Europe and CIS	17	7	41%	10	59%	Yes=3 No=6	Yes=4 No=4	Yes=0 No=0
TOTAL	46	24	52%	22	48%	Yes=4 No=6	Yes=17 No=10	Yes=4 No=6

Question 6.4 – Describe the method set up

Question 6.5 – Indicate any redeployment operations that have already been carried out (frequency bands, former and current use, etc.)

Question 7 – Secondary spectrum trading

Question 7.1 - Has your country created possibilities for secondary spectrum trading? Yes _____ No ____

TABLE 10

Region	Number of replies received	Number of replies "Yes"	Percentage of replies "Yes"	Number of replies "No"	Percentage of replies "No"	Replies/level of development		
						Developed	Developing	Least developed
Africa	16	1	7%	15	93%	Yes=0 No=0	Yes=0 No=4	Yes=1 No=11
Americas	11	2	18%	9	82%	Yes=0 No=0	Yes=2 No=9	Yes=0 No=0
Arab States	8	0	0%	8	100%	Yes=0 No=0	Yes=0 No=6	Yes=0 No=2
Asia-Pacific	8	0	0%	8	100%	Yes=0 No=0	Yes=0 No=6	Yes=0 No=2
Europe and CIS	26	8	31%	18	69%	Yes=5 No=6	Yes=3 No=12	Yes=0 No=0
TOTAL	69	11	16%	58	84%	Yes=5 No=6	Yes=5 No=37	Yes=1 No=15

If NO: are there any plans to do so? Yes _____ No _____ When? _____

TABLE 11

Region	Number of replies received	Number of replies "Yes"	Percentage of replies "Yes"	Number of replies "No"	Percentage of replies "No"	Replies/level of development		
						Developed	Developing	Least developed
Africa	14	2	15%	12	85%	Yes=0 No=0	Yes=0 No=4	Yes=2 No=8
Americas	8	0	0%	8	100%	Yes=0 No=0	Yes=0 No=8	Yes=0 No=0
Arab States	9	1	11%	8	89%	Yes=0 No=0	Yes=1 No=6	Yes=0 No=2
Asia-Pacific	8	0	0%	8	100%	Yes=0 No=0	Yes=0 No=6	Yes=0 No=2
Europe and CIS	19	9	47%	10	53%	Yes=5 No=2	Yes=4 No=8	Yes=0 No=0
TOTAL	58	12	20%	46	80%	Yes=5 No=2	Yes=5 No=32	Yes=2 No=12

Question 8 – Spectrum management organization

Question 8.2 – Is the responsibility for spectrum management as defined in the Radio Regulations assigned to a single body or is it shared between different organizations (e.g. separate bodies for regulatory issues and general policy, or for government and non-government users)? – Yes _____ No _____

TABLE 12

Region	Number of replies received	Single organization		Several organizations		Replies/level of development		
		Number of replies "Yes"	Percentage "Yes"	Number of replies "No"	Percentage of replies "No"	Developed	Developing	Least developed
Africa	12	6	50%	6	50%	Yes=0 No=0	Yes=1 No=1	Yes=5 No=5
Americas	11	8	73%	3	27%	Yes=0 No=0	Yes=8 No=3	Yes=0 No=0
Arab States	9	7	78%	2	22%	Yes=0 No=0	Yes=5 No=2	Yes=2 No=0
Asia-Pacific	9	7	78%	2	22%	Yes=0 No=0	Yes=5 No=2	Yes=2 No=0
Europe and CIS	22	19	86%	3	14%	Yes=7 No=1	Yes=12 No=2	Yes=0 No=0
TOTAL	63	47	75%	16	25%	Yes=7 No=1	Yes=31 No=10	Yes=9 No=5

The table below gives the number of different spectrum management organizations per region.

TABLE 13

Region	Total number of replies	Ministry	Organization	Operator
		Number of replies	Number of replies	Number of replies received
Africa	15	2	13	0
Americas	11	2	9	0
Arab States	9	0	8	1
Asia-Pacific	10	4	6	0
Europe and CIS	25	9	16	0
TOTAL	70	17	52	1

Question 8.4 – If responsibility for spectrum management is shared between several bodies, indicate:

a) Their respective domains of responsibility

TABLE 14

Region	Total number of replies	Number of replies describing the domain of responsibility	Number of replies providing no indication
Africa	2	1	1
Americas	7	4	3
Arab States	2	1	1
Asia-Pacific	1	1	0
Europe and CIS	12	9	3
TOTAL	24	16	8

b) The arbitration procedure between the different bodies:

TABLE 15

Region	Total number of replies	Number of replies describing the arbitration procedure between the spectrum management organizations	Number of replies providing no indication
Africa	2	1	1
Americas	6	3	3
Arab States	1	0	1
Asia-Pacific	0	0	0
Europe and CIS	7	3	4
TOTAL	16	7	9

Question 8.5 – Are there any plans to change the structure of the organization (e.g. as a result of changes in telecommunications policy)?

TABLE 16

Region	Total number of replies	Number of replies indicating "no change"	Number of replies indicating YES
Africa	12	8	4
Americas	10	8	2
Arab States	7	5	2
Asia-Pacific	5	4	1
Europe and CIS	20	18	2
TOTAL	54	43	11

Question 9 – Spectrum management workforce

TABLE 17 – NUMBER OF REPLIES

Region	Developed countries			Developing countries			Least developed countries			Total		
Workforce (Number of replies)	>100	99-10	<10	>100	99-10	<10	>100	99-10	<10	>100	99-10	<10
Africa					2	2		3	8	0	5	10
Americas				1	4	4				1	4	4
Asia-Pacific				4	1			1	1	4	2	1
Arab States					6	1		1	1		7	2
Europe and CIS	2	6	2	2	9	2				4	15	4
TOTAL	2	6	2	7	22	9		5	10	9	33	21
	10			38			15			63		
In %	16%			60%			24%			14.3%	52.4%	33.3%

TABLE 18 – NUMBER OF PERSONS

Region	Developed countries			Developing countries			Least developed countries			Total		
Workforce	>100	99-10	<10	>100	99-10	<10	>100	99-10	<10	>100	99-10	<10
Africa	-	-	-	-	45	-	125	-	-	125	45	-
Americas	-	-	-	213	-	-	-	-	-	213	-	-
Asia-Pacific	-	-	-	6 305	-	-	-	14	-	6 305	14	-
Arab States	-	-	-	233	-	-	-	18	-	233	18	-
Europe and CIS	614	-	-	730	-	-	-	-	-	1 344	-	-
TOTAL	614	-	-	7 481	45		125	32	-	8 220	77	-
	614			7 526			157			8 297		
In %										99.07%	0.93%	0%

TABLE 19 – NUMBER OF REPLIES

Region	Developed countries			Developing countries			Least developed countries			Total		
Workforce (Number of replies)	>100	99-10	<10	>100	99-10	<10	>100	99-10	<10	>100	99-10	<10
Africa					2	1		2	10		4	11
Americas				1	1	6				1	1	6
Asia-Pacific				3	1	1			1	3	1	2
Arab States					6	1			2		6	3
Europe and CIS		8	1	2	10	1				2	18	2
TOTAL		8	1	6	20	10		2	13	6	30	24
	9			36			15			60		
In %	15%			60%			25%			10%	50%	40%

TABLE 20 – NUMBER OF PERSONS

Region	Developed countries			Developing countries			Least developed countries			Total		
Workforce	>100	99-10	<10	>100	99-10	<10	>100	99-10	<10	>100	99-10	<10
Africa	-	-	-	-	37	-	-	72	-	-	109	-
Americas	-	-	-	152	-	-	-	-	-	152	-	-
Asia-Pacific	-	-	-	2 874	-	-	-	-	7	2 874	-	7
Arab States	-	-	-	151	-	-	-	10	-	151	10	-
Europe and CIS	354	-	-	538	-	-	-	-	-	892	-	-
TOTAL	354	-	0	3 715	37	-	-	82	7	4 069	119	_
	354			3 752			89			4 195		
In %				97%			2.8%			0.2%		

3.2 Technical aspects of national spectrum management

Question 10 – Technical regulation of radiocommunications equipment

Question 10.1 – Is there a requirement for the technical characteristics of radiocommunications equipment to comply with certain requirements (or equipment standards, such as the ITU-R Recommendations) to avoid harmful interference to other services and users? Yes _____ No _____

TABLE 21

Region	Number of replies received	Number of replies "Yes"	"Yes" Replies/development level			Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"
			Developed countries	Developing countries	Least developed countries			
Africa	15	14	Y=0 N=0	Y=4 N=0	Y=10 N=1	1	93%	7%
Americas	11	11	Y=0 N=0	Y=11 N=0	Y=0 N=0	0	100%	0%
Arab States	8	8	Y=0 N=0	Y=7 N=0	Y=1 N=0	0	100%	0%
Asia-Pacific	7	7	Y=0 N=0	Y=5 N=0	Y=2 N=0	0	100%	0%
Europe and CIS	28	28	Y=12 N=0	Y=16 N=0	Y=0 N=0	0	100%	0%
TOTAL	69	68	Y=12 N=0	Y=43 N=0	Y=13 N=1	1	98.5%	1.5%

Question 10.2 – Are these technical requirements or equipment standards developed domestically, or are they derived from those used by other administrations or standards organizations, whether international or regional? – National _____ Other _____

TABLE 22

Region	Development of technical requirements and equipment standards				
	Reply	Development level			Regional level total
		Developed countries	Developing countries	Least developed countries	
Africa	National:	0	0	1	1
	Other:	0	3	10	13
	National and other	0	0	0	0
Americas	National:	0	3	0	3
	Other:	0	11	0	11
	National and other	0	0	0	0
Arab States	National:	0	4	0	4
	Other:	0	5	1	6
	National and other	0	0	0	0
Asia-Pacific	National:	0	1	0	1
	Other:	0	2	1	3
	National and other	0	0	0	0
Europe and CIS	National:	2	5	0	7
	Other:	9	11	0	20
	National and other	0	0	0	0
TOTAL		11	44	13	69

Question 10.3 – Is there a procedure for ensuring that radiocommunications equipment complies with the technical and operational requirements? For example:

Type approval: _____; Manufacturer's declaration of compliance: _____; Other (please specify): _____

TABLE 23

Region	Number of replies received	Procedure 1: Type approval			
		Development level			Total "Yes"
		Developed countries	Developing countries	Least developed countries	
Africa	6	0	3	3	6
Americas	9	0	8	0	8
Arab States	6	0	4	2	6
Asia-Pacific	6	0	5	1	5
Europe and CIS	9	4	1	0	5
TOTAL	**36**	**4**	**21**	**6**	**30**
Percentage of all replies	100	11%	58%	17%	83%

TABLE 24

Region	Number of replies received	Procedure 2: Manufacturer's declaration of compliance			
Africa	7	0	3	4	7
Americas	5	0	5	0	5
Arab States	6	0	4	2	6
Asia-Pacific	3	0	2	1	3
Europe and CIS	14	7	7	0	14
TOTAL	**35**	**7**	**21**	**7**	**35**
Percentage of all replies	100%	20%	60%	20%	100%

TABLE 25

Region	Number of replies received	Procedure 2: Manufacturer's declaration of compliance			
Africa	4	0	3	1	4
Americas	4	0	2	0	2
Arab States	6	0	1	0	1
Asia-Pacific	2	0	1	1	2
Europe and CIS	9	2	7	0	9
TOTAL	**25**	**2**	**14**	**2**	**18**
Percentage of all replies	100%	8%	56%	8%	72%

Question 11 – Management of frequency assignment records

a) Does the national administration have a registry (computerized or not) for national frequency assignments and spectrum use (e.g. in the form of a DBMS-based database)?
Yes _____ No _____

TABLE 26

Region	Number of replies received	Replies/development level			Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"
		Developed	Developing	Least developed				
Africa	15	Yes =0 No =0	Yes=3 No=1	Yes=9 No=2	12	3	80%	20%
Americas	12	Yes =0 No =0	Yes=12 No=0	Yes=0 No=0	12	0	100%	0%
Arab States	8	Yes =0 No =0	Yes=6 No=1	Yes=1 No=0	7	1	87.5%	12.5%
Asia-Pacific	7	Yes =0 No =0	Yes=4 No=0	Yes=2 No=0	5	2	71.5%	28.5%
Europe and CIS	27	Yes =11 No =0	Yes=16 No=0	Yes=0 No=0	27	0	100%	0%
TOTAL	69				63	6	91%	9%

b) Is there a single national registry or are there separate registries for different categories of users (for example, one system for assignments to government users and another for assignments to non-government users)? Single _____ Separate (give details) _____

TABLE 27

Region	Number of replies received	Number of replies for a single DBMS	Number of replies for separate DBMSs	Replies/development level		
				Developed	Developing	Least developed
Africa	13	12	1	SGL=0 SEP=0	SGL=3 SEP=1	SGL=9 SEP=0
Americas	12	10	2	SGL =0 SEP=0	SGL=10 SEP=2	SGL=0 SEP=0
Arab States	8	7	1	SGL=0 SEP=0	SGL=6 SEP=1	SGL=1 SEP=0
Asia-Pacific	7	7	0	SGL=0 SEP=0	SGL=5 SEP=0	SGL=2 SEP=0
Europe and CIS	26	22	4	SGL=10 SEP=1	SGL=12 SEP=3	Yes=0 No=0
TOTAL	66	58	8	SGL=10 SEP=1	SGL=36 SEP=7	SGL=12 SEP=0

* Single DBMS: SGL
* Separate: SEP

c) What is the approximate size of your registry (as of 2007)?

Number of frequency assignments: _____

TABLE 28

Region	Rate of abstention	<1 000	1 000<X<10 000	>10 000	Total
Africa	53%	2	5	0	7
Americas	33%	1	5	2	8
Asia-Pacific	57%	0	1	2	3
Arab States	38%	1	3	1	5
Europe and CIS	46%	5	5	5	15
TOTAL	**45.4%**	**9**	**19**	**10**	**38**
Percentage of replies		23%	50%	27%	100%

Number of licences:

TABLE 29

Region	Rate of abstention	< 1 000	1 000 < X< 10 000	> 10 000	Total
Africa	53%	4	3	0	7
Americas	33%	3	4	1	8
Asia-Pacific	38%	0	2	3	5
Arab States	25%	2	3	1	6
Europe and CIS	29%	7	5	8	10
TOTAL	**36%**	**16**	**17**	**13**	**46**
Percentage of replies		35%	37%	28%	100%

d) Can the frequency assignment be consulted by the public? Yes _____ No _____

TABLE 30

		Public DBMS	DBMS not made public			Replies/development level		
Region	**Number of replies received**	**Number of replies "Yes"**	**Number of replies "No"**	**Percentage of replies "Yes"**	**Percentage of replies "No"**	**Developed**	**Developing**	**Least developed**
Africa	15	2	13	13%	87%	Yes=0 No=0	Yes=0 No=4	Yes=2 No=9
Americas	12	6	6	50%	50%	Yes=0 No=0	Yes=6 No=6	Yes=0 No=0
Arab States	8	4	4	50%	50%	Yes=0 No=0	Yes=3 No=4	Yes=1 No=0
Asia-Pacific	7	2	5	29%	71%	Yes=0 No=0	Yes=2 No=3	Yes=0 No=2
Europe and CIS	26	12	14	46%	54%	Yes=2 No=9	Yes=10 No=5	Yes=0 No=0
TOTAL	68	26	42	38%	62%	Yes=2 No=9	Yes=21 No=22	Yes=3 No=11

e) Is the registry computerized? Yes _____ No _____

TABLE 31

Region	**Number of replies received**	**Number of replies "Yes"**	**Number of replies "No"**	**Percentage of replies "Yes"**	**Percentage of replies "No"**	**Replies/development level**		
						Developed	**Developing**	**Least developed**
Africa	15	10	5	67%	33%	Yes=0 No=0	Yes=2 No=2	Yes=8 No=3
Americas	12	8	4	67%	33%	Yes=0 No=0	Yes=8 No=4	Yes=0 No=0
Arab States	8	8	0	100%	0%	Yes=0 No=0	Yes=7 No=0	Yes=1 No=0
Asia-Pacific	7	7	0	100%	0%	Yes=0 No=0	Yes=5 No=0	Yes=2 No=0
Europe and CIS	26	26	0	100%	0%	Yes=11 No=0	Yes=15 No=0	Yes=0 No=0
TOTAL	68	59	9	87%	13%	Yes=11 No=0	Yes=37 No=6	Yes=11 No=3

Question 12 – Coordination of frequency assignments with other countries:

Do you coordinate assignments to terrestrial stations? Yes _____ No _____

TABLE 32

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	15	14	1	93%	7%	Yes=0 No=0	Yes=3 No=1	Yes=11 No=0
Americas	12	7	5	58%	42%	Yes=0 No=0	Yes=7 No=5	Yes=0 No=0
Arab States	8	8	0	100%	0%	Yes=0 No=0	Yes=7 No=0	Yes=1 No=0
Asia-Pacific	7	5	2	71%	29%	Yes=0 No=0	Yes=4 No=1	Yes=1 No=1
Europe and CIS	27	27	0	100%	0%	Yes=12 No=0	Yes=15 No=0	Yes=0 No=0
TOTAL	69	61	8	88%	12%	Yes=12 No=0	Yes=36 No=7	Yes=13 No=1

Do you coordinate assignments to space stations? Yes _____ No _____

TABLE 33

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	15	6	9	40%	60%	Yes=0 No=0	Yes=4 No=0	Yes=2 No=9
Americas	12	5	7	42%	58%	Yes=0 No=1	Yes=5 No=7	Yes=0 No=0
Arab States	7	5	2	71%	29%	Yes=0 No=0	Yes=5 No=1	Yes=0 No=1
Asia-Pacific	7	4	3	57%	43%	Yes=0 No=0	Yes=4 No=1	Yes=0 No=2
Europe and CIS	26	25	1	96%	4%	Yes=11 No=0	Yes=14 No=1	Yes=0 No=0
TOTAL	67	45	22	67%	33%	Yes=11 No=1	Yes=32 No=10	Yes=2 No=11

Question 13 – Notification of frequency assignments

Do you notify ITU of frequency assignments as required by the Radio Regulations?

TABLE 34

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	15	11	4	73%	27%	Yes=0 No=0	Yes=2 No=2	Yes=9 No=2
Americas	12	8	4	67%	33%	Yes=0 No=0	Yes=8 No=4	Yes=0 No=0
Arab States	8	8	0	100%	0%	Yes=0 No=0	Yes=7 No=0	Yes=1 No=0
Asia-Pacific	6	6	0	100%	0%	Yes=0 No=0	Yes=4 No=0	Yes=2 No=0
Europe and CIS	27	25	2	93%	7%	Yes=11 No=1	Yes=14 No=1	Yes=0 No=0
TOTAL	68	58	10	85%	15%	Yes=11 No=1	Yes=36 No=6	Yes=12 No=2

Question 14 – Do you have a policy and planning function for national spectrum management (i.e. a national strategy for future use of the spectrum?

TABLE 35

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	15	13	2	87%	13%	Yes=0 No=0	Yes=3 No=1	Yes=10 No=1
Americas	12	10	2	83%	17%	Yes=0 No=0	Yes=10 No=2	Yes=0 No=0
Arab States	8	8	0	100%	0%	Yes=0 No=0	Yes=7 No=0	Yes=1 No=0
Asia-Pacific	6	6	0	100%	0%	Yes=0 No=0	Yes=4 No=0	Yes=2 No=0
Europe and CIS	26	22	4	84%	16%	Yes=10 No=2	Yes=12 No=2	Yes=0 No=0
TOTAL	67	59	8	88%	12%	Yes=10 No=2	Yes=36 No=5	Yes=13 No=1

Question 15 – Do you perform technical analyses of frequency assignment requests?

TABLE 36

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	15	15	0	100%	0%	Yes=0 No=0	Yes=4 No=0	Yes=11 No=0
Americas	12	11	1	92%	8%	Yes=0 No=0	Yes=10 No=1	Yes=1 No=0
Arab States	8	8	0	100%	0%	Yes=0 No=0	Yes=7 No=0	Yes=1 No=0
Asia-Pacific	6	6	0	100%	0%	Yes=0 No=0	Yes=4 No=0	Yes=2 No=0
Europe and CIS	26	25	1	96%	4%	Yes=11 No=1	Yes=14 No=0	Yes=0 No=0
TOTAL	67	65	2	97%	3%	Yes=11 No=1	Yes=39 No=1	Yes=15 No=0

Question 16 – Do you perform radio monitoring of terrestrial radio services?

TABLE 37

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	15	14	1	93%	7%	Yes=0 No=0	Yes=4 No=0	Yes=11 No=0
Americas	12	10	2	83%	17%	Yes=0 No=0	Yes=10 No=1	Yes=1 No=0
Arab States	8	7	1	87.5%	12.5%	Yes=0 No=0	Yes=7 No=0	Yes=1 No=0
Asia-Pacific	6	5	1	83%	17%	Yes=0 No=0	Yes=4 No=0	Yes=1 No=1
Europe and CIS	27	26	1	96%	4%	Yes=11 No=1	Yes=15 No=0	Yes=0 No=0
TOTAL	68	62	6	91%	9%	Yes=11 No=1	Yes=39 No=1	Yes=15 No=0

Fixed monitoring stations

a) How many fixed monitoring stations do you have?

TABLE 38

Region	Fixed stations	Percentage of total	Administrations
Africa	12	0.26%	4 developing countries and 6 LDCs
Americas	33	0.86%	9 developing countries
Arab States	19	0.50%	7 developing countries and 1 LDC
Asia-Pacific	700	18.29%	2 developing countries and 1 LDC
Europe and CIS	3 065	80%	11 developed countries and 13 developing countries
TOTAL	3 840	100%	

b) Please provide a brief list of the facilities available at your fixed monitoring stations (for example receivers, spectrum analysers, direction finding equipment):

c) What is the upper frequency limit of your fixed monitoring stations?

TABLE 39

	UPPER LIMITS OF FIXED MONITORING STATIONS (GHz)								
Regions	**<= 1**	**1<L<3**	**3**	**3<L<26.5**	**26.5**	**26.5<L<40**	**40**	**>40**	**Total/ Region**
Africa	2	2	3	0	1	1	0	0	9
Americas	1	0	7	0	0	0	0	0	8
Asia-Pacific	2	0	2	1	0	0	0	0	5
Arab States	2	0	2	0	1	0	2	0	7
Europe and CIS	0	1	16	4	0	1	0	2	24
TOTAL	7	3	30	5	2	2	2	2	53

d) What is the upper frequency limit of your fixed direction-finding stations?

TABLE 40

	UPPER LIMITS OF FIXED MONITORING STATIONS (GHz)								
Regions	**<= 1**	**1<L<3**	**3**	**3<L<26.5**	**26.5**	**26.5<L<40**	**40**	**>40**	**Total/ Region**
Africa	1	1	5	0	0	0	0	0	7
Americas	1	1	5	0	0	0	0	0	7
Asia-Pacific	2	0	3	0	0	0	0	0	5
Arab States	1	1	4	0	0	0	0	0	6
Europe and CIS	2	5	9	5	0	0	0	0	21
TOTAL	7	8	26	5	0	0	0	0	46

Mobile monitoring stations

e) How many mobile monitoring stations do you have?

TABLE 41

Region	**Measurement stations (MS)**		**DF stations**		**Ratio MS/DF**
	Quantity	**Percentage of total**	**Quantity**	**Percentage of total**	
Africa	14	0.16%	14	0.16%	1
Americas	50	0.57%	50	0.57%	1
Asia-Pacific	730	8.35%	730	8.35%	1
Europe and CIS	7 927	90.71 %	7 927	90.71%	1
Arab States	18	0.21%	18	0.21%	1
TOTAL	**8 739**	**100%**	**8 739**	**100%**	**1**

TABLE 42

Region	**Stations**	**Percentage of total**	**Administrations**
Asia-Pacific	730	8.35%	1 developing country
Europe and CIS	7 927	90.71%	1 developed country

f) Please provide a brief list of the facilities available in your mobile monitoring stations (for example receivers, spectrum analysers, direction finding equipment):_____

g) What is the upper frequency limit of your mobile monitoring stations?____ MHz

TABLE 43

	UPPER LIMITS OF MOBILE MONITORING STATIONS (GHz)								
Regions	**<= 1**	**1<L<3**	**3**	**3<L<26.5**	**26.5**	**26.5<L<40**	**40**	**>40**	**Total/ Region**
Africa	1	1	4	0	1	1	0	0	8
Americas	0	0	6	1	1	0	0	0	8
Asia-Pacific	0	0	3	1	0	0	0	0	4
Arab States	0	0	2	3	2	0	1	0	8
Europe and CIS	1	3	10	4	2	1	5	0	26
TOTAL	2	4	25	9	6	2	6	0	54

h) What is the upper frequency limit of your mobile direction-finding stations? _____ MHz

TABLE 44

	UPPER LIMITS OF MOBILE DIRECTION FINDING STATIONS (GHz)								
Regions	**<= 1**	**1<L<3**	**3**	**3<L<26.5**	**26.5**	**26.5<L<40**	**40**	**>40**	**Total/ Region**
Africa	1	1	6	0	0	0	0	0	8
Americas	1	1	6	0	1	0	0	0	9
Asia-Pacific	0	0	4	0	0	0	0	0	4
Arab States	0	2	6	0	0	0	0	0	8
Europe and CIS	4	7	11	1	0	0	1	0	24
TOTAL	6	11	33	1	1	0	1	0	53

Of the 53 administrations having replied to this question, 33 (62%) stated that their mobile direction-finding stations have an upper limit of 3 000 MHz

Transportable monitoring stations

i) How many transportable monitoring stations do you have? _____

TABLE 45

Region	Transportable measurement stations (MS)		Transportable DF stations		Ratio transportable MS/DF
	Quantity	Percentage of total	Quantity	Percentage of total	
Africa	13	0.26%	2	0.04%	6.5
Americas	8	0.16%	4	0.08%	2
Asia-Pacific	324	6.50%	323	6.54%	1
Europe and CIS	4 576	92.730%	4 544	92.08%	1.086
Arab States	14	0.28%	9	0.96%	1.56
TOTAL	**4 935**	**100%**	**4 882**	**98.92%**	**1.01**

TABLE 46

Region	Transportable stations	Percentage of total	Administrations
Asia-Pacific	324	6.05%	1 (developing country)
Europe and CIS	4 576	92.73%	2 developed countries

j) Please provide a brief list of the facilities available in your transportable monitoring stations (for example receivers, spectrum analysers, direction finding equipment):

k) What is the upper frequency limit of your transportable monitoring stations? _____ MHz

TABLE 47

	UPPER LIMITS OF TRANSPORTABLE MONITORING STATIONS (GHz)								
Regions	**<= 1**	**1<L<3**	**3**	**3<L<26.5**	**26.5**	**26.5<L<40**	**40**	**>40**	**Total/ Region**
Africa	0	0	5	0	2	0	0	0	7
Americas	0	0	7	0	0	0	0	0	7
Asia-Pacific	1	0	1	0	0	1	0	0	3
Arab States	1	0	4	0	0	0	2	0	7
Europe and CIS	1	2	7	3	1	0	2	3	19
TOTAL	3	2	24	3	3	1	4	3	43

l) What is the upper frequency limit of your transportable DF stations? _____ MHz

TABLE 48

	UPPER LIMITS OF TRANSPORTABLE DIRECTION-FINDING STATIONS (GHz)								
Regions	**<= 1**	**1<L<3**	**3**	**3<L<26.5**	**26.5**	**26.5<L<40**	**40**	**>40**	**Total/ Region**
Africa	0	0	3	0	0	0	0	0	3
Americas	0	1	4	0	0	0	0	0	5
Asia-Pacific	1	0	3	0	0	1	0	0	5
Arab States	1	0	3	0	0	0	2	0	6
Europe and CIS	0	1	7	3	1	0	1	1	14
TOTAL	2	2	20	3	1	1	3	1	33

Question 17 – Do you perform space monitoring? Yes _____ No _____

TABLE 49

Region	**Number of replies received**	**Number of replies "Yes"**	**Number of replies "No"**	**Percentage of replies "Yes"**	**Percentage of replies "No"**	**Replies/development level**		
						Developed	**Developing**	**Least developed**
Africa	14	0	14	0%	100%	0	4	10
Americas	12	0	12	0%	100%	0	12	0
Arab States	8	0	8	0%	100%	0	7	1
Asia-Pacific	5	3	2	60%	40%	0	4	1
Europe and CIS	25	3	22	12%	882%	11	14	0
TOTAL	64	6	58	9%	91%	11	41	12

Question 18 – Does you administration participate in the international monitoring programme of ITU? Yes _____ No _____

Terrestrial emissions

TABLE 50

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	14	1	13	7%	93%	Yes=0 No=0	Yes=0 No=4	Yes=1 No=9
Americas	11	3	8	27%	73%	Yes=0 No=0	Yes=3 No=8	Yes=0 No=0
Arab States	7	1	6	14%	86%	Yes=0 No=0	Yes=1 No=5	Yes=0 No=1
Asia-Pacific	5	2	3	40%	60%	Yes=0 No=0	Yes=2 No=1	Yes=0 No=2
Europe and CIS	25	8	17	32%	68%	Yes=5 No=6	Yes=3 No=11	Yes=0 No=0
TOTAL	62	15	47	24%	76%	Yes=5 No=6	Yes=9 No=29	Yes=1 No=12

Space emissions

TABLE 51

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	12	0	12	0%	100%	Yes=0 No=0	Yes=0 No=4	Yes=0 No=8
Americas	12	0	12	0%	100%	Yes=0 No=0	Yes=0 No=12	Yes=0 No=0
Arab States	7	0	7	0%	100%	Yes=0 No=0	Yes=0 No=6	Yes=0 No=1
Asia-Pacific	5	1	4	20%	80%	Yes=0 No=0	Yes=1 No=2	Yes=0 No=2
Europe and CIS	25	3	22	12%	88%	Yes=3 No=8	Yes=0 No=14	Yes=0 No=0
TOTAL	61	4	57	6.6%	93.4%	Yes=3 No=8	Yes=1 No=38	Yes=0 No=11

Question 19 – Cooperation between spectrum management and monitoring services

TABLE 52

Region	Number of replies received (countries)	Average score, by service		
		Frequency management	Enforcement	Licences
Africa	11	49.93%	18.62%	31.45%
Americas	10	29.19%	47.40%	23.40%
Arab States	6	34.21%	32.89%	32.89%
Asia-Pacific	5	34.29%	45.71%	20%
Europe and CIS	19	42.74%	36.16%	21.09%
TOTAL	51	34.07%	36.27%	26.75%

Question 20 – Do you perform inspections on radio stations? Yes _____ No _____

TABLE 53

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	15	14	1	93%	7%	Yes=0 No=0	Yes=4 No=0	Yes=10 No=1
Americas	12	9	3	75%	25%	Yes=0 No=0	Yes=9 No=3	Yes=0 No=0
Arab States	7	4	3	57%	43%	Yes=0 No=0	Yes=4 No=3	Yes=0 No=0
Asia-Pacific	6	4	2	67%	33%	Yes=0 No=0	Yes=3 No=1	Yes=1 No=1
Europe and CIS	26	23	3	88%	12%	Yes=9 No=2	Yes=14 No=1	Yes=0 No=0
TOTAL	66	54	12	82%	18%	Yes=9 No=2	Yes=34 No=8	Yes=11 No=2

a) What inspection techniques are used by your administration to determine if spectrum users are complying with national or international requirements?

b) What are the administrative procedures provided for in the inspection policy (e.g. number of inspections, type of notification provided prior to inspection, rules and regulations)?

TABLE 54

Region	Number of replies	Developed countries	Developing countries	Least developed countries
Africa	9	0	3	6
Americas	10	0	10	0
Asia-Pacific	4	0	4	0
Europe and CIS	18	8	10	0
Arab States	6	0	5	1
TOTAL	**47**	**8**	**35**	**7**

c) What equipment does your administration use to perform technical measurements during an inspection?

TABLE 55

Region	Number of replies	Developed countries	Developing countries	Least developed countries
Africa	13	0	4	9
Americas	10	0	10	0
Asia-Pacific	5	0	4	1
Europe and CIS	19	7	12	0
Arab States	6	0	5	1
TOTAL	**53**	**7**	**35**	**11**

d) What technical parameters does your administration measure when inspecting a radio system?

TABLE 56

Region	Number of replies	Developed countries	Developing countries	Least developed countries
Africa	13	0	4	9
Americas	10	0	10	0
Asia-Pacific	5	0	4	1
Europe and CIS	19	7	12	0
Arab States	6	0	4	1
TOTAL	**53**	**7**	**35**	**11**

e) What station records does your administration review when inspecting a radio station?

TABLE 57

Region	Number of replies	Developed countries	Developing countries	Least developed countries
Africa	11	0	4	7
Americas	8	0	8	0
Asia-Pacific	5	0	4	1
Europe and CIS	15	5	10	0
Arab States	6	0	5	1
TOTAL	**45**	**5**	**31**	**9**

Question 21 – Do you perform technical analyses of complaints of radio frequency interference?
Yes _____ No _____

TABLE 58

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	15	14	1	93%	7%	Yes=0 No=0	Yes=4 No=0	Yes=10 No=1
Americas	12	12	0	100%	0%	Yes=0 No=0	Yes=12 No=0	Yes=0 No=0
Arab States	8	8	0	100%	0%	Yes=0 No=0	Yes=7 No=0	Yes=1 No=0
Asia-Pacific	6	6	0	100%	0%	Yes=0 No=0	Yes=4 No=0	Yes=2 No=0
Europe and CIS	26	25	1	96%	4%	Yes=11 No=0	Yes=14 No=1	Yes=0 No=0
TOTAL	67	65	2	97%	3%	Yes=11 No=0	Yes=41 No=1	Yes=13 No=1

Do you have an established consultation process with a government or non-government body for resolving these complaints? Yes _____ No _____

TABLE 59

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	14	5	9	36%	64%	Yes=0 No=0	Yes=1 No=3	Yes=4 No=6
Americas	12	3	9	25%	75%	Yes=0 No=0	Yes=3 No=9	Yes=0 No=0
Arab States	8	4	4	50%	50%	Yes=0 No=0	Yes=4 No=3	Yes=0 No=1
Asia-Pacific	6	5	1	83%	17%	Yes=0 No=0	Yes=3 No=1	Yes=2 No=0
Europe and CIS	25	14	11	56%	44%	Yes=3 No=7	Yes=11 No=4	Yes=0 No=0
TOTAL	65	31	34	48%	52%	Yes=3 No=7	Yes=22 No=20	Yes=6 No=7

Question 22 – Use of computers for national spectrum management

General

a) Do you use computers for national spectrum management? Yes _____ No _____

TABLE 60

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	15	15	0	100%	0%	Yes=0 No=0	Yes=4 No=0	Yes=11 No=1
Americas	12	11	1	92%	8%	Yes=0 No=0	Yes=11 No=1	Yes=0 No=0
Arab States	8	8	0	100%	0%	Yes=0 No=0	Yes=7 No=0	Yes=1 No=0
Asia-Pacific	6	6	0	100%	0%	Yes=0 No=0	Yes=4 No=0	Yes=2 No=0
Europe and CIS	26	26	0	100%	0%	Yes=11 No=0	Yes=18 No=0	Yes=0 No=0
TOTAL	67	66	1	98.5%	1.5%	Yes=11 No=0	Yes=44 No=1	Yes=14 No=0

b) Type of computers: _____

c) How many workstations: _____ or personal computers (PCs): _____

d) Operating system(s): _____

Questions 22a), c) and e)

Administrations using PCs or workstations and utilization of local area network (LAN).

TABLE 61

Region	Developed countries (359)		Developing countries (5 426)		Least developed countries (14)		Total (5862)	
	PC or work station	Local network	PC or work station	Local network	PC or work station	Local network	PC or work station	Local networks
Africa	0	0	36	02	87	10	124	12
Americas			214	2 014	0	0	214	2 014
Asia-Pacific	0	0	4 622	3 751	6	2	4 628	3 753
Arab States	0	0	268	39	10	2	278	41
Europe and CIS	589	8	874	230	0	0	1 463	238
TOTAL	**589**	**8**	**6 014**	**6 036**	**103**	**14**	**6 117**	**6 058**
Percentage of replies	9.62%	0.13%	98.31%	99.87%	1.68%	0.23%	100%	

e) Does your spectrum management system operate within a local area network (LAN)?
Yes _____ No _____

TABLE 62

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	15	8	7	53%	47%	Yes=0 No=0	Yes=1 No=7	Yes=7 No=4
Americas	11	10	1	91%	9%	Yes=0 No=0	Yes=10 No=1	Yes=0 No=0
Arab States	8	8	0	100%	0%	Yes=0 No=0	Yes=7 No=0	Yes=1 No=0
Asia-Pacific	6	5	1	83%	17%	Yes=0 No=0	Yes=4 No=0	Yes=1 No=1
Europe and CIS	24	24	0	100%	0%	Yes=9 No=0	Yes=15 No=0	Yes=0 No=0
TOTAL	64	55	9	86%	14%	Yes=9 No=0	Yes=37 No=8	Yes=9 No=1

f) Do you have access to the Internet? Yes _____ No _____

TABLE 63

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	15	15	0	100%	0%	Yes=0 No=0	Yes=4 No=0	Yes=11 No=0
Americas	12	11	1	92%	8%	Yes=0 No=0	Yes=11 No=1	Yes=0 No=0
Arab States	8	7	1	87.5%	12.5%	Yes=0 No=0	Yes=6 No=1	Yes=1 No=0
Asia-Pacific	6	5	1	83%	17%	Yes=0 No=0	Yes=4 No=0	Yes=1 No=1
Europe and CIS	24	24	0	100%	0%	Yes=9 No=0	Yes=15 No=0	Yes=0 No=0
TOTAL	65	62	3	95%	5%	Yes=9 No=0	Yes=40 No=2	Yes=13 No=1

g) Does your administration operate a website to disseminate spectrum management information? Yes _____ No _____

TABLE 64

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	14	10	4	71%	29%	Yes=0 No=0	Yes=3 No=1	Yes=7 No=3
Americas	12	11	1	92%	8%	Yes=0 No=0	Yes=11 No=1	Yes=0 No=0
Arab States	8	7	1	86%	14%	Yes=0 No=0	Yes=6 No=1	Yes=1 No=0
Asia-Pacific	6	3	3	50%	50%	Yes=0 No=0	Yes=3 No=1	Yes=0 No=2
Europe and CIS	25	22	3	88%	12%	Yes=7 No=3	Yes=15 No=0	Yes=0 No=0
TOTAL	65	53	12	82%	18%	Yes=7 No=3	Yes=38 No=4	Yes=8 No=5

If YES, please provide the address (URL) of the website:

Spectrum management system for developing countries (SMS4DC)

h) Are you familiar with the SMS4DC product? Yes _____ No _____

TABLE 65

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	14	9	5	64%	36%	Yes=0 No=0	Yes=2 No=2	Yes=7 No=3
Americas	12	7	5	58%	42%	Yes=0 No=0	Yes=7 No=5	Yes=0 No=0
Arab States	7	5	2	71%	29%	Yes=0 No=0	Yes=5 No=1	Yes=0 No=1
Asia-Pacific	6	3	3	50%	50%	Yes=0 No=0	Yes=2 No=2	Yes=1 No=1
Europe and CIS	20	7	13	32%	68%	Yes=3 No=2	Yes=4 No=11	Yes=0 No=0
TOTAL	59	31	28	52%	48%	Yes=3 No=2	Yes=20 No=21	Yes=8 No=5

i) Does your administration intend to use SMS4DC?

TABLE 66

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	13	9	4	69%	31%	Yes=0 No=0	Yes=4 No=0	Yes=5 No=4
Americas	11	6	5	55%	45%	Yes=0 No=0	Yes=6 No=5	Yes=0 No=0
Arab States	8	7	1	88%	12%	Yes=0 No=0	Yes=6 No=1	Yes=1 No=0
Asia-Pacific	6	3	3	50%	50%	Yes=0 No=0	Yes=0 No=4	Yes=2 No=0
Europe and CIS	19	3	16	17%	83%	Yes=1 No=4	Yes=2 No=12	Yes=0 No=0
TOTAL	57	28	29	49%	51%	Yes=1 No=4	Yes=18 No=22	Yes=8 No=4

j) Does your administration still use WinBASMS? Yes _____ No _____

TABLE 67

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	14	1	13	7%	93%	Yes=0 No=0	Yes=0 No=4	Yes=1 No=9
Americas	11	1	10	9%	91%	Yes=0 No=0	Yes=1 No=10	Yes=0 No=0
Arab States	7	0	7	0%	100%	Yes=0 No=0	Yes=0 No=6	Yes=0 No=1
Asia-Pacific	5	2	3	40%	60%	Yes=0 No=0	Yes=1 No=3	Yes=1 No=0
Europe and CIS	19	0	19	0%	100%	Yes=0 No=5	Yes=0 No=14	Yes=0 No=0
TOTAL	56	4	52	7%	93%	Yes=0 No=5	Yes=2 No=37	Yes=2 No=10

k) Did your administration participate in the regional ITU-D seminar on spectrum management, including SMS4DC applications?

TABLE 68

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	13	4	9	31%	69%	Yes=0 No=0	Yes=0 No=4	Yes=4 No=5
Americas	12	4	8	33%	67%	Yes=0 No=0	Yes=4 No=8	Yes=0 No=0
Arab States	7	4	3	57%	43%	Yes=0 No=0	Yes=4 No=2	Yes=0 No=1
Asia-Pacific	6	4	2	67%	33%	Yes=0 No=0	Yes=2 No=2	Yes=2 No=0
Europe and CIS	19	3	16	16%	84%	Yes=1 No=4	Yes=2 No=12	Yes=0 No=0
TOTAL	57	19	38	33%	67%	Yes=1 No=4	Yes=12 No=28	Yes=6 No=6

Advanced automated spectrum management system (AASMS)

l) Does your administration use an advanced automated spectrum management system (AASMS) recommended by ITU-R Study Group 1 other than SMS4DC?
Yes _____ No _____

TABLE 69

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	14	5	9	36%	64%	Yes=0 No=0	Yes=1 No=3	Yes=4 No=6
Americas	12	5	7	42%	58%	Yes=0 No=0	Yes=5 No=7	Yes=0 No=0
Arab States	7	5	2	71%	29%	Yes=0 No=0	Yes=5 No=1	Yes=0 No=1
Asia-Pacific	6	3	3	50%	50%	Yes=0 No=0	Yes=3 No=1	Yes=0 No=2
Europe and CIS	20	3	17	11%	89%	Yes=1 No=5	Yes=2 No=12	Yes=0 No=0
TOTAL	59	21	38	36%	64%	Yes=1 No=5	Yes=16 No=24	Yes=4 No=9

m) Has your administration had problems using your AASMS? Yes ___ No ___

TABLE 70

Region	Number of replies received	Number of replies "Yes"	Number of replies "No"	Percentage of replies "Yes"	Percentage of replies "No"	Replies/development level		
						Developed	Developing	Least developed
Africa	10	2	8	20%	80%	Yes=0 No=0	Yes=1 No=2	Yes=1 No=6
Americas	11	4	7	36%	64%	Yes=0 No=0	Yes=4 No=7	Yes=0 No=0
Arab States	7	2	5	29%	71%	Yes=0 No=0	Yes=2 No=4	Yes=0 No=1
Asia-Pacific	6	3	3	50%	50%	Yes=0 No=0	Yes=2 No=2	Yes=1 No=1
Europe and CIS	13	0	13	0%	100%	Yes=0 No=2	Yes=0 No=11	Yes=0 No=0
TOTAL	47	11	36	23%	77%	Yes=0 No=2	Yes=9 No=26	Yes=2 No=8

n) Describe the problems encountered using your AASMS:

o) How would you propose to change the AASMS to correct or overcome these problems (give details)?

23 – Which of the following ITU-R handbooks and reports do you use:

a) National Spectrum Management, 2005 edition

b) Spectrum Monitoring, 2005 edition

c) Computer-aided techniques for Spectrum Management, 2005 edition

d) Report ITU-R SM.2012-2, Economic aspects of spectrum management, version 200X

TABLE 71

Region	Number of countries that replied to the question	Number of countries using the handbook National Spectrum Management, 2005 edition		Number of countries using the handbook Spectrum Monitoring, 2005 edition		Number of countries using the handbook Computer-aided Techniques for Spectrum Management, 2005 edition		Number of countries using Report ITU-R SM.2012-2, Version 200X	
Africa	9	5	56%	9	10%	4	44%	9	100%
Americas	8	6	75%	7	87.5%	6	75%	2	25%
Arab States	6	6	100%	6	100%	4	67%	6	100%
Asia-Pacific	5	5	100%	5	100%	3	60%	4	80%
Europe and CIS	18	13	72%	17	94%	6	33%	9	50%
TOTAL	46	35	76%	44	96%	23	50%	30	65

3.3 Economic aspects

24 – Spectrum management costs

24.1 – What is the cost of providing national spectrum management services in your country (if there is more than one organization or agency responsible for spectrum management please give the total costs if this information is available)?

TABLE 72

Region	Developed countries			Developing countries			Least developed countries			%
Dollars US	Min.	Max.	Number of replies	Min.	Max	Number of replies	Min.	Max.	Number of replies	
Africa	–	–	0	–	1 000 000	1	–	600 000	1	17%
Americas	–	–	0	70 000	2 000 000	3	–	–	0	27%
Asia-Pacific	–	–	0	–	200 000 000	1	–	60 000	1	40%
Arab States	–	–	0	–	0	0	–	–	0	0%
Europe and CIS	11 360 000	16 960 000	3	1 500 000	24 000 000	6	–	–	0	43%
Replies	–	–	3			11	–	–	2	

* Percentage of replies received by region in relation to the number of replies received for this question.

24.2 – What is the source of the funding for these spectrum management services?

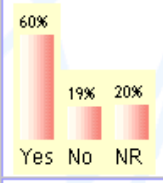
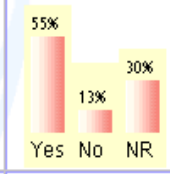
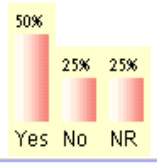
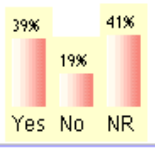
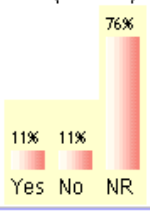
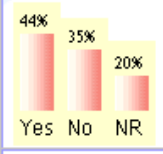
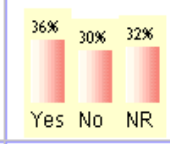
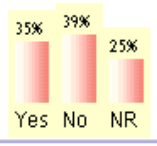
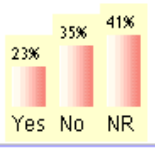
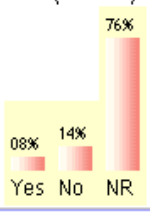
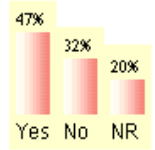
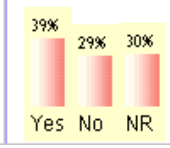
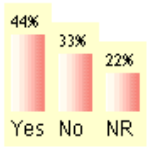
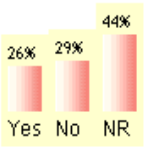
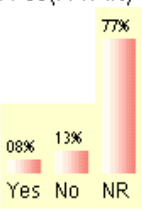
TABLE 73

Region	Developed countries (7)			Developing countries (33)			Least developed countries (11)			Total
	General budget	Organiz-ation budget (fees)	Mixed	General budget	Organiz-ation budget (fees)	Mixed	General budget	Organiz-ation budget (fees)	Mixed	
Africa	0	0	0	1	2	0	0	8	0	11
Americas	0	0	0	2	7	0	0	0	0	9
Asia-Pacific	0	0	0	3	0	0	0	1	0	4
Arab States	0	0	0	2	5	0	0	1	0	8
Europe and CIS	3	5	0	4	8	0	0	0	0	20
TOTAL	3	5	0	12	22	0	0	10	0	52

Annex 9

Spectrum fees database statistics for all countries

Chart: Fixed service

VARIABLE / APPLICATION	Radio Relay	Local Radio Loop	Links between fixed stations	Local Radio Networks	Other Applications
Bandwith	Yes :41(60.29%) No : 13(19.12%) NR : 14(20.59%) 	Yes :38(55.88%) No : 9(13.24%) NR : 21(30.88%) 	Yes :34(50.00%) No : 17(25.00%) NR : 17(25.00%) 	Yes :27(39.71%) No : 13(19.12%) NR : 28(41.18%) 	Yes : 8(11.76%) No : 8(11.76%) NR : 52(76.47%) 
Number of channels	Yes :30(44.12%) No : 24(35.29%) NR : 14(20.59%) 	Yes :25(36.76%) No : 21(30.88%) NR : 22(32.35%) 	Yes :24(35.29%) No : 27(39.71%) NR : 17(25.00%) 	Yes :16(23.53%) No : 24(35.29%) NR : 28(41.18%) 	Yes : 6(8.82%) No : 10(14.71%) NR : 52(76.47%) 
Centre frequency, or band position in the spectrum	Yes :32(47.06%) No : 22(32.35%) NR : 14(20.59%) 	Yes :27(39.71%) No : 20(29.41%) NR : 21(30.88%) 	Yes :30(44.12%) No : 23(33.82%) NR : 15(22.06%) 	Yes :18(26.47%) No : 20(29.41%) NR : 30(44.12%) 	Yes : 6(8.82%) No : 9(13.24%) NR : 53(77.94%) 

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