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| **World Telecommunication Development Conference (WTDC-14)****Dubai, 30 March – 10 April 2014** |  |
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This document presents the proposed revision to Resolution 9 as agreed by representatives of CEPT, Arab States, RCC and China, plus incorporation of parts of ACP 37/A15 proposal on DSA, as proposed by APT.

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RESOLUTION 9 (Rev. Dubai, 2014)

Participation of countries, particularly developing countries,
in spectrum management

The World Telecommunication Development Conference (Dubai, 2014),

considering

a) that the continuing growth in demand for spectrum, from both existing and new radiocommunication applications, places ever greater requirements on a scarce resource;

b) that, because of the investment in equipment and infrastructures, major changes in the existing use of the spectrum are often difficult to achieve, except in the long term;

c) that the marketplace drives the development of new technologies to find new solutions to address development problems;

d) that national strategies should take into account international commitments under the Radio Regulations (RR);

e) that it is recommended that national strategies should also take into account global changes in telecommunications/information and communication technologies (ICTs)and developments in technology;

f) that increased spectrum access may be facilitated through technical innovation and greater sharing capabilities;

g) that, based on its ongoing work, the ITU Radiocommunication Sector (ITU-R) is well placed to provide worldwide information on radiocommunication technology and spectrum utilization trends;

h) that the ITU Telecommunication Development Sector (ITU-D) is well placed to facilitate the participation of developing countries in ITU-R activities, and, for those developing countries that so request, to distribute to them the results of particular ITU-R activities;

i) that such information would assist spectrum managers in developing countries to develop their own national medium- or long-term strategies;

j) that such information would enable developing countries to benefit from sharing studies and other technical studies in ITU-R, including new technologies such as Dynamic Spectrum Access (DSA) and White Space Devices(US from APT/37/15);

k) that, within spectrum management, one of the most pressing concerns of many developing countries, including least developed countries(LDCs),small island developing states(SIDS), landlocked developing countries and countries with economies in transition, is the difficulty of elaborating methods for the calculation of fees for use of the radio-frequency spectrum;

l) that, regional, bilateral or multilateral agreementscould be a basis to foster the cooperation in the field of radiospectrum

*m)* that spectrum redeployment could accommodate the increasing demand of new and existing radiocommunication applications(Doc 44, CHN);

*n)* that spectrum monitoring includes effective use of spectrum monitoring facilities to support the spectrum management process, evaluation of spectrum efficiency for the purpose of spectrum planning, provision of technical support for frequency allocation and assignment, maintaining the order of radiocommunications,(Doc 44, CHN)

recognizing

a) that it is the sovereign right of every State to manage spectrum use within its territories;

b) that there is a strong need for the active participation of developing countries in ITU activities, as expressed in Resolution 5 (Rev. Hyderabad, 2010), Resolution ITU-R 7--2 of the Radiocommunication Assembly (Geneva, 2012) and Resolution 44 (Rev. Dubai, 2012) of the World Telecommunication Standardization Assembly, which may be represented individually and through regional groups;

c) that it is important to take into consideration the ongoing work in ITU-R and ITU-D, and the need to avoid duplication of effort;

d) the successful cooperation between ITU-R and ITU-D to produce the reports entitled "WTDC-98 Resolution 9: Review of national spectrum management and use of the spectrum – Stage 1: 29.7-960 MHz", "WTDC Resolution 9 (Rev. Istanbul, 2002): Review of national spectrum management and use of the spectrum – Stage 2: 960-3 000 MHz" and "WTDC Resolution 9 (Rev. Doha, 2006): Review of national spectrum management and use of the spectrum – Stage 3: 3 000 MHz - 30 GHz";"WTDC Resolution 9 (Rev. Hyderabad, 2010): Participation of countries, particularly developing countries, in spectrum management"; (Doc 44, CHN)

e) the considerable support given by the Telecommunication Development Bureau (BDT) in the compilation of these reports, supporting developing countries;

f) the successful development of the "Spectrum Fees Database" (SF Database) and the initial compilation of guidelines[[1]](#footnote-1) 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;

g) that, in connection with the ITU-R Handbook on National Spectrum Management and Report ITU-R SM.2012, additional guidelines have been compiled offering various national approaches to spectrum management fees for spectrum use,

h) that, there is significant activity across multiple ITU-R Study Groups to address spectrum sharing, which may have implications for national spectrum management and which may be of particular interest to developing countries(US from APT/37/15);

*h)* that ITU-R continues to update Recommendation ITU-R SM.1603, which provides guidelines for spectrum redeployment;

*i)* that the ITU‑R Handbook on Spectrum Monitoring provides guidelines for installation and operation of spectrum monitoring infrastructures as well as implementation of spectrum monitoring, while Recommendation ITU‑R SM.1139 prescribes administrative and procedural requirements for international monitoring systems, (Doc 44, CHN)

Taking into account

1. No. 155 of the ITU Convention, defining aim of studies conducted within ITU-R
2. Current scope of ITU-R Study Group 1 as defined by Radiocommunication Assembly in Resolution ITU-R 4-6

resolves

1 to prepare a report within the next study period on, economic and financial approaches and challenges to spectrum management and spectrum monitoring, taking into consideration development trends in spectrum management, case studies on spectrum redeployment, licensing processes and instructive practices implemented in spectrum monitoring around the world;(Doc 44 CHN), including consideration of new spectrum sharing technologies(US from APT/37/15);

2 to continue the development of the SF Database, incorporating national experiences, and provide additional guidelines and case studies, based on contributions from administrations;

3 to update the information available on National Spectrum Tables and make the Res 9 and ICT Eye portals complementary(ARB Mod proposal)

4 to compile case studies regarding national uses of shared spectrum access , including through DSA and White Space Devices, especially in making broadband access more affordable to lower-income populations, especially in developing countries, and study the economic and social benefits brought forth by the effective sharing of spectrum resources(US from APT/37/15 with additional from APT/37/15);

5 to collect best practices for developing countries to consider in addressing the desire for efficiency and harmonization of spectrum, including DSA and White Space Devices, while balancing the spectrum needs of other radiocommunication services(US from APT/37/15 with additional from APT/37/15);

6 to continue to gather the necessary information on activities carried out by ITU-D Study Group 2, ITU-R Study Group 1 and relevant BDT programmes,

instructs the Director of the Telecommunication Development Bureau

1 to continue to provide the support described in recognizing e) above;

2 to encourage Member States from developing countries, at national and/or regional level, to provide ITU-R and ITU-D with a list of their needs with respect to national spectrum management, to which the Director should endeavour to respond, and an example of which is given in Annex 1 to this resolution;

3 to encourage Member States to continue to provide ITU‑R and ITU‑D with practical examples of their experiences of using the SF Database, development trends in spectrum management, spectrum redeployment, as well as installation and operation of spectrum monitoring systems;(Doc 44, CHN)

4 to take appropriate measures so that work in accordance with this resolution is carried out in the six official and working languages of the Union,

invites the Director of the Radiocommunication Bureau

to ensure that ITU-R continues the collaboration with ITU-D in the implementation of this resolution.

Annex 1 to RESOLUTION 9 (Rev. Dubai, 2014)

Specific needs in spectrum management

The main types of technical assistance which developing countries expect from ITU are as follows:

**1 Assistance in raising the awareness of national policy-makers as to the importance of effective spectrum management for a country's economic and social development**

With the restructuring of the telecommunication sector, the emergence of competition, high demand for frequencies from operators, disaster mitigation and relief, and the need to combat climate change, effective spectrum management has become indispensable for States. ITU should play a key role in raising the awareness of policy-makers by organizing special seminars designed specifically for them. To this end:

* in view of how important the regulators have become, ITU might include them in its regular distribution list for circulars providing information about the different education programmes and modules organized by the Union;
* ITU should include dedicated spectrum-management modules in the programmes of meetings (colloquiums, seminars) bringing together regulators and ministries responsible for spectrum management, with private-sector involvement;
* within the limits of available resources, ITU should make fellowships available for LDC participation at those meetings.

**2 Training and dissemination of available ITU documentation**

Spectrum management must be in accordance with the provisions of the Radio Regulations, regional agreements to which administrations are parties, andnational regulations. Spectrum managers must be able to provide frequency users with relevant information.

Developing countries would like to have access to ITU-R and ITU-D documentation, which must be available in the six official languages of the Union.

Developing countries would also like to see suitable training provided in the form of specialized ITU seminars, in order to help frequency managers gain a thorough knowledge of ITU-R Recommendations, Reports and Handbooks[(Doc 44, CHN)which are constantly changing.

Through its regional offices, ITU could set up an effective system to provide frequency managers with real-time information on existing and future publications.

**3 Assistance in developing methodologies for establishing national tables of frequency allocations and spectrum redeployment**

These tables form the mainstay of spectrum management; they identify the services provided and their category of use. ITU could encourage administrations to make available national frequency allocation tables to the public and stakeholders and (Doc 44, CHN)facilitate administrations' access to information available in other countries, in particular by developing links between its website and the websites of administrations which have produced national tables of frequency allocations available to the public, allowing developing countries to obtain information on national allocations in a rapid and timely fashion. ITU-R and ITU-D could also compile guidelines for the development of the above-mentioned tables. Spectrum redeployment is sometimes necessary to allow the introduction of new radiocommunication applications. ITU could provide support in this regard by compiling guidelines for the implementation of spectrum redeployment, on the basis of practical experience of administrations and based on Recommendation ITU-R SM.1603 – Spectrum redeployment as a method of national spectrum management.

In certain circumstances, the Telecommunication Development Bureau (BDT) could make available the assistance of its experts for the development of national tables of frequency allocations and for the planning and implementation of spectrum redeployments, at the request of the countries concerned.

To the extent possible, ITU-D should incorporate appropriate issues into its regional seminars on spectrum management.

**4 Assistance in setting up computerized frequency management and monitoring systems**

These systems facilitate routine spectrum-management tasks. They must be capable of taking local features into account. The establishment of operational structures also enables the smooth execution of administrative tasks, frequency allocation, spectrum analysis and monitoring. According to the specific features of individual countries, ITU can provide expert help in identifying the technical means, operational procedures and human resources needed for effective spectrum management.The ITU-R Handbook on Computer Aided Techniques for Spectrum Management and the ITU-R Handbook on Spectrum Monitoring may provide technical guidelines for setting up the above-mentioned systems.(Doc 44, CHN)

ITU should improve the Spectrum Management System for Developing Countries (SMS4DC) software (including its availability in the other official languages), and ensure the necessary assistance and training in the implementation of the software in administrations' daily spectrum management activities.

ITU should encourage spectrum monitoring stations that have already participated in the international monitoring system to provide technical assistance to administrations of developing countries and facilitate participation of developing countries in regional or international monitoring activities, as well as participation of monitoring stations in developing countries in the international monitoring system, as necessary. It[CHN/44] should also provide encouragement and assistance to administrations in setting up regional spectrum monitoring systems, if required.

**5 Economic and financial aspects of spectrum management**

ITU-D and ITU-R could, together, provide examples of:

a) reference frameworks for management accounting; and

b) guidelines for the implementation of management accounting, which could be very useful for calculating the administrative costs of spectrum management referred to in recognizing g) of this resolution.

c) guidelines of the methods used for spectrum valuation. (Doc 43 Add 1, ARB)

ITU could further develop the mechanism set up under resolves 2 of this resolution in order to enable developing countries to:

– learn more about practices in other administrations, which could be useful for defining spectrum fee policies tailored to each country's specific situation;

– identify financial resources to be allocated to the operational and investment budgets for spectrum management.

**6 Assistance with preparations for world radiocommunication conferences (WRC) and with follow-up on WRC decisions**

The submission of joint proposals is a way of guaranteeing that regional needs are taken into account. Alongside regional organizations, ITU could give impetus to the establishment and running of regional and subregional preparatory structures for WRCs.

With support from regional and subregional organizations, the Radiocommunication Bureau could communicate the broad outlines of decisions taken by the conferences, and thereby contribute to establishing a follow-up mechanism for such decisions at national and regional level.

**7 Assistance with participation in the work of the relevant ITU-R study groups and their working parties**

The study groups play a key role in the drafting of Recommendations which affect the entire radiocommunication community. It is essential that developing countries participate in study group work in order to ensure that their specific features are taken into account. For effective participation of those countries, ITU could – through its regional offices – assist in running a subregional network organized around coordinators responsible for the Questions under study within ITU-R, as well as by providing financial assistance in order for the coordinators to participate in meetings of the relevant ITU-R study groups. The designated coordinators for the different regions should also assist in meeting the desired needs.

# Transition to digital TV

Most of the developing countries are currently experiencing the transition from analog to digital TV. There is a need then for assistance in many topics including frequency planning, service scenarios, and technology selection which all in turn affect the spectral efficiency, and the resulting digital dividend. (Doc 43 Add 1, ARB)

**9 Assistance in identifying the most efficient ways to utilize the digital dividend**

Developing countries upon completing digital switchover will have some portions of a very valuable spectrum freed, which are known as the digital dividend. Different discussions are being conducted on how to optimally reallocate or otherwise enable more efficient use of(APT/37/15) such bands. In order to maximize both economic and social impacts it will be appropriate to consider including potential use-cases and best practices in ITU’s library and to hold regular international and regional workshops on that subject.

# 10 Innovativespectrum access techniques

With the ongoing demand on high data rates there is pressure on limited spectrum resource. Developing countries need to be aware of innovative schemes for improving spectrum efficiency and spectrum use through trainings, seminars and case studies on actual deployments and trials.Areas of particular importance include

* Sharing information and best practice on co-existence betweenDSA-enabledWhite Space Devices and existing radio-communication services;
* Sharing information and best practices for regulators on the use of DSA and White Space Devices in VHF and UHF bands;
* Reviews around the possibility of applying DSA and White Spaces technology to enable better and more cost-effective fulfilment of Universal Service Obligations (USO) (APT/37/15);

# 11 ICT indicators for spectrum management

Global ICT indicators are available to measure and undertake benchmarking for the different aspects of telecom/ICT development. There is no ICT indicator for spectrum management processes to provide a guidance to the National Administration on where there spectrum management processes are as compared to other States and what are the gaps for improvement

# 12Online spectrum authorizations

As part of Smart Government the public services are increasingly being offered through mobile and online platforms. The process of spectrum authorizations can also be automated and the process of receiving requests for spectrum use and the authorizations can be made available online and on smart devices. Trainings and case studies can be offered to the developing countries to benefit from the experience of countries that have deployed such systems

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1. In this resolution, "guidelines" refers to a range of options that may be used by ITU Member

States in their domestic spectrum management activities. [↑](#footnote-ref-1)