

PLENARY MEETING

Source: Document [CPM15-2/TEMP/16](#)

Document CPM15-2/210-E
30 March 2015
Original: English

Working Group 5

PROPOSED MODIFICATIONS TO THE DRAFT CPM REPORT

CHAPTER 5, AGENDA ITEM 9.1, ISSUE 9.1.3

AGENDA ITEM 9.1

9 *to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention:*

9.1 *on the activities of the Radiocommunication Sector since WRC-12;*

NOTE: Eight issues have been identified by CPM15-1 under this agenda item.

5/9.1.3 Resolution 11 (WRC-12)

Use of satellite orbital positions and associated frequency spectrum to deliver international public telecommunication services in developing countries

(**WP 4A** (technical and regulatory aspects), **SC** (regulatory and procedural aspects) / -)

5/9.1.3/1 Executive summary

WRC-15 agenda item 9.1, issue 9.1.3, was established in order to address Resolution **11 (WRC-12)**, which resolves that ITU-R undertake studies to determine whether it might be necessary to apply additional regulatory measures to enhance the availability of public international telecommunication services delivered through satellite technology. ITU Member States and Sector Members were invited to contribute to the implementation of Resolution **11 (WRC-12)**.

5/9.1.3/2 Background

To examine the importance of satellite telecommunications for delivering international public telecommunications services in developing countries, WRC-12 adopted Resolution **11 (WRC-12)**.

ITU-R has conducted many analyses to provide for guaranteed access to the geostationary orbit (GSO), and adopted Reports and Recommendations which promote efficient use of the GSO. However, it should be noted that both ITU-R and ITU-D have roles and responsibilities in the implementation of this Resolution.

In Resolution **11 (WRC-12)**, WRC-12 recognized the important and strategic role of satellite communications in both developed and developing countries as captured in the resolutions and

decisions of several United Nations and ITU Conferences stated in the ‘*considering*’ part. Importantly, satellite services can help with reduction of the digital divide and fulfilment of the United Nations’ Millennium Development Goals (MDGs), noting the correlation between broadband satellite technologies and the reduction of the broadband divide particularly in remote and rural areas. The efficient use of orbital resources and associated frequency spectrum further helps to ensure global coverage as well as direct connectivity of countries at affordable prices.

5/9.1.3/3 Summary of technical and operational studies, including a list of relevant ITU-R Recommendations

In light of the increased demand for satellite services, including those services that may help fulfil universal broadband access and the MDGs, and an increased interest of developing countries to develop and launch national or regional satellites, several ITU, ITU-R and ITU-D Resolutions have been adopted to provide direction for ITU activities in support of developing countries in their development of telecommunications/ICTs infrastructures and services, including in the areas of spectrum management and use of the orbital resource. The results have been activities including workshops, seminars and training in the area of spectrum management, satellite telecommunications, disaster communications, and satellite regulatory procedures.

Furthermore, Resolution **11 (WRC-12)** calls for studies and collaboration between ITU-R and ITU-D to provide information on satellite technologies and applications as defined in ITU-R Recommendations and Reports and on satellite regulatory procedures in the Radio Regulations (RR) that will help developing countries with development and implementation of satellite networks and services, including through the organization of workshops, seminars and training courses.

The World Telecommunication Development Conference (WTDC-14) reinforced such joint ITU-D and ITU-R activities through the update of Resolution **37 (Rev. Dubai, 2014)** “Bridging the Digital Divide” by calling upon the Director of the BDT to:

- promote the implementation of studies or projects and activities, in collaboration with the ITU-R, with a view, on the one hand, to complementing national radiocommunication systems, including satellite systems, and, on the other, to increasing knowledge and capacities thereof, in order to achieve optimum utilization of the orbit spectrum resource, with the aim of stimulating the development and coverage of satellite broadband for bridging the digital divide;
- analyse the adoption of measures for collaboration with ITU-R, in order to support studies, projects or systems and, at the same time, to implement joint activities which seek to build capacities in efficient use of the orbit/spectrum resource for the provision of satellite services, with a view to achieving affordable access to satellite broadband and facilitating network connectivity between different areas, countries and regions, especially in the developing countries.

On the other hand, regarding studies required to determine whether it might be necessary to apply additional regulatory measures to enhance the availability of public international telecommunication services delivered through satellite technology, some administrations are of the view that these types of service are neither identified nor defined in the RR or have been recognized for satellite networks registered in the ITU Master International Frequency Register.

This section provides an overview of relevant ITU, ITU-R and ITU-D Resolutions, ITU-R Recommendations and Reports, as well as information on ITU-R and ITU-D activities held in support of this agenda item.

5/9.1.3/3.1 Existing relevant ITU, ITU-R and ITU-D Resolutions

Resolution 15 (Rev.WRC-03) instructs the Director of the Radiocommunication Bureau (BR) to include activities in support of developing countries participating effectively in international space communication systems as part of the Operational Plan, and invites Council to consider how to best utilize the resources of the Union in support of these objectives.

Resolution 11 (WRC-12) invites the ITU-D to organize workshops, seminars and training courses that address sustainable and affordable access to satellite telecommunications and resolves that the ITU-R continues to collaborate with ITU-D in the area of satellite technologies and applications as defined in ITU-R Recommendations and Reports and on satellite regulatory procedures that will help developing countries with development and implementation of satellite networks and services and for ITU-R to “undertake studies to determine whether it might be necessary to apply additional regulatory measures to enhance the availability of public international telecommunication services delivered through satellite technology”.

Resolution ITU-R 7-2 resolves that, pursuant to No. 224 of the Convention, the Director of the BR shall assist the Director of the BDT in organizing worldwide and/or regional information meetings, seminars and workshops that will provide developing countries with the required information on ITU-R activities.

BDT Objective 2 “Foster an enabling environment for ICT development and foster the development of telecommunication/ICT networks as well as relevant applications and services, including bridging the standardization gap” of the Dubai Action Plan adopted by WTDC-14 directs the work of the BDT in providing support for developing countries in utilization of new technologies for the development of their information and communication infrastructures and services, by taking due account of broadband deployment, spectrum management and radio monitoring, including satellite telecommunications.

WTDC Resolution 11 (Rev. Dubai 2014) “Telecommunication/information and communication technology services in rural, isolated and poorly served areas and indigenous communities” instructs the Director of the BDT to continue efforts to promote the optimum use by developing countries of all available new telecommunication/ICT services, including satellite, to serve these areas and communities.

WTDC Resolution 37 (Rev. Dubai, 2014) on Bridging the Digital Divide highlights the role of satellite communications in bridging the digital divide and requests the Director of the BDT to continue to assist the Member States and Sector Members in developing a pro-competition policy and regulatory framework for information and communication technologies, including online services and electronic commerce, as well as capacity building in connectivity and accessibility, taking into account the special needs of women and disadvantaged groups;

Resolution 139 (Rev. Busan, 2014) “Use of telecommunications/information and communication technologies to bridge the digital divide and build an inclusive information society” instructs the Director of the BDT, in coordination with the Directors of the other Bureaux, as appropriate (1) to continue to assist the Member States and Sector Members in developing a pro-competitive policy and regulatory framework for ICTs and ICT applications; (2) to continue to assist Member States and Sector Members with strategies that expand access to telecommunication infrastructure, particularly for rural or remote areas; (3) to evaluate models for affordable and sustainable systems for access to information in rural or remote areas, communications and ICT applications on the global network, based on studies of these models.

5/9.1.3/3.2 Existing relevant ITU-R Recommendations, Reports and Handbooks

The relevant ITU-R Recommendations: ITU-R S.1001-2, ITU-R S.1782-0, ITU-R BO.1774-1, ITU-R M.1854-1.

The relevant ITU-R Reports: ITU-RS.2151-1, ITU-R M.2149-1

Handbooks

- Satellite communications, which gives a comprehensive description of all issues relative to satellite communication systems operating in the FSS.
- Specifications of transmission systems for the broadcasting-satellite service (BSS).
- Mobile-satellite service (MSS), which provides a brief survey and introduction to MSS operations.

5/9.1.3/3.3 New relevant ITU-R and ITU-D Recommendations and Reports

PDN Report ITU-R S.[BROADBAND BY FSS] includes the technical and operational characteristics of FSS systems that facilitate the delivery of affordable, high speed broadband applications as well as implementation examples.

ITU-D Study Group Reports for the 2010-2014 study period which provide technology descriptions, implementation guidance, and developing country case study examples of satellite broadband deployment, as well as use of satellite connections for mobile backhaul:

- Final Report on Question 10-3/2: Telecommunications/ICTs for rural and remote areas (<http://www.itu.int/pub/D-STG-SG02.10.3-2014>).
- Final Report for Question 25/2: Access technology for broadband telecommunications including IMT, for developing countries (<http://www.itu.int/pub/D-STG-SG02.25-2014>).

5/9.1.3/3.4 Workshops, Seminars and Training Programs

ITU-R, in collaboration with ITU-D, delivered several workshops, seminars and training programs specifically targeted at providing support to developing countries in the area of satellite telecommunications.

- ITU-R Regional Radiocommunication Seminars.
- ITSO/ITU Satellite Seminars at the ITU Global Symposium for Regulators (2012 and 2013).
- ITU Academy Satellite Seminars and Training Workshops.
- ITU Workshop on the efficient use of the spectrum/orbit resource (Cyprus, 2014).
- Prospects for use of the Ka-band by satellite communication systems (2012).
- ITU Training on Satellite Launching and Monitoring (2012).
- BR/BDT - Training Workshop on Satellite (2010).
- BR/BDT Regional Seminar “Management of radio-frequency spectrum and satellite orbits at international level” (2010).
- BR/BDT regional workshop on SpaceCom (2010).
- BR/BDT Seminar on Regional Satellite Communication Systems, Yerevan (2006).

5/9.1.3/3.5 Current situation

Over the past several years there has been great growth and innovation in the development and deployment of satellite telecommunications services for the benefit of developed and developing countries. The introduction of competition into the international satellite telecommunication sector has led to an increase in the availability of diverse and innovative services in both developed and developing countries, including the availability of such public services as e-government and disaster relief. Governments and international and regional organizations have been fostering innovation, affordability, and broader availability of satellite services through ITU registration and deployment of their own satellite systems. Furthermore, efficient use of the orbital resource and associated frequency spectrum helps to ensure global coverage and to connect countries directly, instantly and reliably at an affordable price.

One view is that global connectivity and global coverage provide non-discriminatory access to international public telecommunication services when implemented, provide one of the cornerstones for the achievement of global connectivity and coverage; and hence the criticality of the availability of satellite orbital positions and associated frequency spectrum to deliver international public telecommunication services. This view is of the belief that studies are needed to resolve the challenges faced by various stakeholders involved in ensuring the provision of international public telecommunication services through use of satellite technology. Additionally, competition as an instrument may not be adequate on its own to ensure the availability of international public telecommunications services to various parts of the world, considering the need to continue assisting developing countries in using satellite telecommunications to enable sustainable and affordable access to information and telecommunication services mentioned in Resolution 11 (WRC-12).

Another view is of the belief that competition is adequate and that public service obligations are not defined in the RR. Also, no technical evidence was provided to ensure universal access was granted for Member States. Further, this view is of the belief that the current practices and situation do not require any additional regulatory measures in order to ensure provisions of international public telecommunication satellite services because this can be effectively provided by existing commercial satellites considering the fact that current competition offers affordable prices for satellite services. In order to realize this it may be advised that the national regulatory authorities accommodate these commercial satellites through a proper national regulatory regime.

5/9.1.3/3.5.1 Evolving satellite marketplace – Increased availability of satellite services

As also recognized in Resolution 11 (WRC-12), the introduction of competition into the international satellite telecommunication sector has led to an increase in the availability of diverse and innovative international telecommunication services in both developed and developing countries.

The satellite sector over the past 15 years has been marked by the introduction of competition leading to the emergence of diverse new satellite operators, including national and regional operators in developing countries. Since Intelsat's privatization in 2001, there has been tremendous growth in the number of satellites providing telecommunications capacity and services globally. While initially only a handful of countries had the financial and technical capabilities to develop satellites, the industry has grown to include a more diverse set of nations, and currently many emerging markets are seeking to increase their level of space activity. Some developing countries have already invested in multiple generations of satellites. Others plan to drastically extend their established space programs to include new capabilities. Increased demand for space services has further led to increased diversity in the number of operators providing services in developing

countries. There are now over 300 commercial communications satellites in orbit⁴⁹. This growth in capacity has enabled developing countries to benefit from higher bandwidth links and at increasingly lower costs.

Increased competition also has led to more innovative broadband and public telecommunications services including those supporting e-Government, disaster communications, e-education and e-health. Importantly, such services are available through multiple service providers, driven by customer and market demand and not by public service obligations.

Additionally, policy priorities for bridging the digital divide and ensuring broadband access for all, including those in remote and rural areas, has led to growth in demand and availability of broadband services by diverse means. For example, there has been growth of availability in developing countries of high-capacity transoceanic submarine fibre optic cables. Such competition in the marketplace ultimately leads to decreases in costs. Despite this diversity of service platforms, satellite services remain critical, providing real-time broadcasting, distributing video programming, providing backhaul to other services like cellular systems and providing emergency back-up links, and in some geographic areas is often the only viable option for telecommunication services.

Importantly, the increased demand for broadband in rural and remote areas has also led to innovative public policy strategies, service offerings, and business models, including public private partnerships to stimulate universal broadband deployment including a role for satellite services. For example, Argentina's National Telecommunications Plan "Argentina Conectada" includes a component that will help bring connectivity to the country's rural and border area schools. The intention is to provide schools with satellite Internet connections using satellite antennas (very small aperture terminals (VSAT))⁵⁰. Viet Nam's Strategic Plan on Information and Communications Development from now to 2020 includes objectives for increasing broadband connectivity, including in rural and remote areas, through diverse means of access including fibre optical cable systems, satellite transmission, wireless broadband network, as per the geographical, economical and social conditions⁵¹.

5/9.1.3/3.5.2 Efficient use of the orbital resource – Availability of satellite orbital resources

Telecommunications/ICT services are increasingly considered an essential component of overall economic growth and development, making efficient use of spectrum and orbital resources a similarly critical component of national economic growth and development strategies and plans.

For example, social programs to ensure universal connectivity in Argentina, Bolivia, and Mexico all include satellite resources as a key component, and each country is developing its own national satellite program. Article 44 of the ITU Constitution stipulates that "in using frequency bands for radio services, Member States shall bear in mind that radio frequencies and any associated orbits, including the GSO, are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the RR, so that countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of the developing countries and the geographical situation of particular countries." Moreover,

⁴⁹ The Satellite Industry Association (SIA) 2012 State of the Satellite Industry Report states that there are over 1 000 operating satellites as of year-end 2012 – more than half of those are communications satellites; more than one-third are commercial communications satellites.

⁵⁰ ITU-D Study Group 2, Document [2/160-E](#) – prepared by Argentina.

⁵¹ ITU-D Study Group 2, Document [2/100-E](#) – prepared by Viet Nam.

in Resolution 71 (Rev. Busan, 2014) of the Plenipotentiary Conference, ITU adopted its strategic plan for the period 2016-2019, which contains, as one of the objectives of ITU-R: “Meet, in a rational, equitable, efficient, economical and timely way, the ITU membership's requirements for radio-frequency spectrum and satellite-orbit resources, while avoiding harmful interference.”

In fulfilling the provisions stipulated in the ITU Constitution, the RR in their Appendices **30**, **30A**, and **30B** provide for a guarantee of access to the GSO for all Member States of the ITU. RR Appendices **30** and **30A** were designed to provide for the guaranteed use of frequencies from GSO positions for the transmissions of BSS. RR Appendix **30B** specifically provides a guarantee of access to spectrum allocated to the FSS for use from orbital positions on the GSO. Within the RR Appendix **30B** Plan, there is 1 600 MHz of spectrum (800 MHz uplink/800 MHz downlink) for each Member State of the ITU.

Moreover, during the past 30 years, ITU Members have undertaken numerous studies and actions, including at WRC's, to review and improve provisions in the RR to allow for more efficient use of radio frequencies and associated satellite orbital resources.

Most recently, WRC-12 adopted several new or modified regulatory measures to ensure broader access to the orbit-spectrum resource including:

- new rules for bringing into use, effective 1 January 2013;
- suspension period for unplanned services extended from two to three years, effective 1 January 2013.

Importantly, these regulatory measures were adopted taking into account the first-come, first-served principle of use of the satellite orbit in ways that will make orbit-spectrum resource more broadly and efficiently available to all. Studies underway in ITU-R under WRC-15 agenda item 7 allow for ongoing review of how to improve these procedures and to respond to new and evolving challenges of the satellite telecommunications sector.

The international organizations that deal with the oversight of the satellite industry have a similar objective of affording public and universal services obligation coverage by satellite system, and to ensure that a specific satellite operator provides non-discriminatory access to its space assets. ITU-R studies may help determine if there is a need to change satellite regulatory provisions to ensure international public telecommunication services through global coverage and connectivity by satellites. It would therefore be very helpful to bear in mind such scenarios when responding to Resolution **11 (WRC-12)**.

5/9.1.3/4 Regulatory and procedural considerations

The current satellite regulatory procedures in the RR, coupled with privatization and competition in the global telecommunications environment, have provided developing countries an increase in the number of satellite operators, an increase in the number of satellites under development, an increase in demand for higher bandwidth satellite services and an increase in the diversity of services available to the public. While some challenges remain in building developing country capacities in order to fully take advantage of satellite services and the orbital resource, the current situation demonstrates availability of international public telecommunication services for developing countries through application of existing regulatory procedures.

After taking into account the tremendous success by the satellite sector to meet the growing and evolving needs of developed and developing countries under the current regulatory regime, it is the view of developing countries to receive greater benefits from satellite communications. ITU-R recommends, in accordance with Resolution **11 (WRC-12)** and WTDC-14 Resolution **37 (Rev. Dubai, 2014)**, that priority be placed on implementation of joint ITU-R and ITU-D activities

to further support capacity building and knowledge sharing in the area of satellite telecommunications. Such activities should particularly focus on use of satellite technologies and applications as defined in ITU-R Recommendations and Reports and on satellite regulatory procedures in the RR that will help developing countries with development and implementation of satellite networks and services.

5/9.1.3/4.1 Examples of regulatory text, conclusions and/or general considerations, as appropriate

5/9.1.3/4.1.1 Option A

No changes are required to the RR.

Reasons: A great amount of information has been gathered during the study cycle between WRC-12 and WRC-15 regarding the ITU-R and ITU-D achievements, practices and current activities that relates to Resolution **11 (WRC-12)**.

Since no studies have been submitted to ITU-R to address *resolves 2* of Resolution **11 (WRC-12)**, it may be inferred that the current activities and practices of the ITU-R and the ITU-D are ensuring the enhancement of the availability of satellite services. As a result, some views are of the belief that current regulatory measures are adequate to ensure such availability, and that no additional regulatory measures are required for this particular issue. Moreover, the proposed elements of studies listed in Option B may require further analysis, as they may appear to be outside the scope of Resolution **11 (WRC-12)**.

The current satellite deployment in the GSO should satisfy the demand of international telecommunication public services and that the issue faced by the satellite operators is effectively the market access in the different countries, rather than the lack of orbital resources, and to urge administrations to develop a suitable national regulatory regime to accommodate international telecommunication public services.

Administrations should support the implementation of the Resolutions in section 5/9.1.3/3.1, in partnership with the ITU-D, including through more targeted support for developing countries in navigating the satellite filing process and to invite reporting by the BR and BDT on the capacity building activities undertaken in association with these Resolutions.

5/9.1.3/4.1.2 Option B

Continuation of studies and related revision of Resolution **11 (WRC-12)** to support the same.

Reasons: Given that study elements, to facilitate *resolves 2* of Resolution **11 (WRC-12)** were submitted and considered by ITU-R only in July 2014, it is believed that studies still need to be done in ITU-R in order to adequately respond to Resolution **11 (WRC-12)** before WRC-15, and a provision should be made to revise Resolution **11 (WRC-12)** in order to continue with the studies as it may be required for *resolves 2* of Resolution **11 (WRC-12)** to continue even after WRC-15 which may be performed through ITU inter-sectorial activities. All conducted studies in ITU-R would be performed within the current framework of the RR, and the satellite network filings should be treated in the same manner and equal basis. In this context, possible study elements are elaborated further in the paragraph below.

The study elements may include, but are not limited to the following: the evolution of demand for international public telecommunication services provided through the use of satellite technology; identification of the orbital resources required to guarantee the provision of the international telecommunication services versus those that are currently being used for delivering these services; identification of the measures and conditions that are applicable to the use of these resources and how these resources have been recognized and registered at the international level; problems that

may have arisen or been experienced as a result of the measures currently in place; whether there is a need for change, and if so what change and what evolution path for the change should be followed; how such changes in regulation can affect the competition in the telecommunication sector.
