

## RESOLUTION 233 (WRC-12)

### **Studies on frequency-related matters on International Mobile Telecommunications and other terrestrial mobile broadband applications**

The World Radiocommunication Conference (Geneva, 2012),

*considering*

- a) that since WRC-07 there has been tremendous growth in the demand for mobile broadband applications with multimedia capabilities;
- b) that International Mobile Telecommunications (IMT) systems have been the main method of delivering wide area mobile broadband applications;
- c) that IMT and other mobile broadband systems contribute to global economic and social development by providing a wide range of multimedia applications, such as mobile telemedicine, teleworking, distance learning and other applications;
- d) that in all countries where IMT systems are deployed there is a continuing significant growth in the number of users of IMT systems and in the quantity and rate of data carried, the latter being driven to a large extent by audiovisual content;
- e) that IMT and other mobile broadband systems could help reduce the digital divide between urban and rural areas, including underserved communities;
- f) that in many developing markets the main delivery mechanism for broadband access is expected to be through mobile devices;
- g) that other radiocommunication systems, such as radio local area networks (RLANs), support a wide range of mobile broadband applications;
- h) that adequate and timely availability of spectrum and supporting regulatory provisions is essential to support future growth of IMT and other mobile broadband systems;
- i) that there is a need to continually take advantage of technological developments in order to increase the efficient use of spectrum and facilitate spectrum access;
- j) that harmonized worldwide bands and harmonized frequency arrangements for IMT and other mobile broadband systems are highly desirable in order to achieve global roaming and the benefits of economies of scale;
- k) that many countries have not yet made available spectrum already identified in the Radio Regulations for IMT, for various reasons, including the use of this spectrum by other systems and services;
- l) that proximity to bands already identified for IMT may lead to reduced complexity in equipment design;
- m) the need to protect existing services when considering frequency bands for possible additional allocations to any service;
- n) that frequency-related matters for IMT in certain frequency bands below 6 GHz were studied in preparation for WRC-07, and WRC-07 decided upon technical conditions and regulatory procedures in some of these bands;

- o)* Report ITU-R M.2109, on sharing studies between IMT-Advanced systems and geostationary-satellite networks in the fixed-satellite service in the 3 400-4 200 and 4 500-4 800 MHz frequency bands;
- p)* Report ITU-R M.2110, on sharing studies between radiocommunication services and IMT systems operating in the 450-470 MHz band;
- q)* Report ITU-R M.2111, on sharing studies between IMT-Advanced and the radiolocation service in the 3 400-3 700 MHz bands;
- r)* Report ITU-R M.2112, on compatibility/sharing of airport surveillance radars and meteorological radar with IMT systems within the 2 700-2 900 MHz band,

*noting*

- a)* that Report ITU-R M.2078, on spectrum estimates for IMT, approved in 2006, predicted total spectrum requirements for 2020 to be 1 280 MHz and 1 720 MHz for low and high user demand scenarios, respectively;
- b)* that Report ITU-R M.2243, approved in 2011, contains an assessment of the global mobile broadband deployments and forecasts for IMT;
- c)* that IMT encompasses both IMT-2000 and IMT-Advanced collectively, as described in Resolution ITU-R 56;
- d)* that Resolution ITU-R 57 addresses the principles for the process of development of IMT-Advanced, and Question ITU-R 77-7/5 considers the needs of developing countries in the development and implementation of IMT;
- e)* that Question ITU-R 229-3/5 seeks to address the further development of IMT;
- f)* that Recommendations ITU-R M.1457 and ITU-R M.2012 contain detailed specifications of the terrestrial radio interfaces of IMT-2000 and IMT-Advanced, respectively,

*recognizing*

- a)* that there is a fairly long lead time between the identification of frequency bands by world radiocommunication conferences and the deployment of systems in those bands, and timely availability of spectrum is therefore important to support the development of IMT and other terrestrial mobile broadband applications;
- b)* that IMT systems have been in operation since the year 2000;
- c)* that the need for cost-effective implementation of IMT, particularly in many developing countries and countries with large areas of low population density, and the particular advantages of lower frequency bands for these purposes;
- d)* that the advantages of the frequency bands below 1 GHz for wide coverage and those above 1 GHz for higher data rates with respect to use of IMT systems are noted in Resolutions **224 (Rev.WRC-12)** and **223 (Rev.WRC-12)**, respectively;
- e)* the use of relevant parts of the spectrum by other radiocommunication services, many of which involve significant investment in infrastructure or represent significant societal benefit, and the evolving needs of these services,

*resolves to invite ITU-R*

- 1 to study additional spectrum requirements, taking into account:
  - technical and operational characteristics of IMT systems, including the evolution of IMT through advances in technology and spectrally-efficient techniques, and their deployment;
  - the bands currently identified for IMT, the technical conditions of their use, and the possibility of optimizing the use of these bands with a view to increasing spectrum efficiency;
  - the evolving needs, including user demand for IMT and other terrestrial mobile broadband applications;
  - the needs of developing countries;
  - the time-frame in which spectrum would be needed;
- 2 to study potential candidate frequency bands, taking into account the results of the studies under *resolves to invite ITU-R 1*, protection of existing services and the need for harmonization,

*further resolves*

- 1 that the studies referred to in *resolves to invite ITU-R 2* include sharing and compatibility studies with services already having allocations in the potential candidate bands and in adjacent bands, as appropriate, taking into account the current and planned use of these bands by the existing services, as well as the applicable studies already performed in ITU-R;
- 2 to invite WRC-15 to consider the results of the above studies and take appropriate actions,

*encourages administrations*

to submit contributions during the study period on their assessment of the impact on the existing services, based on the studies carried out under this Resolution,

*invites administrations*

to participate in the studies by submitting contributions to ITU-R.