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| **ITU Centres of Excellence Network for Asia and the Pacific****State Radio Monitoring Center - China****Training on****SPECTRUM ENGINEERING AND CROSS-BORDER RADIO FREQUENCY COORDINATION****Xi’an, Shanxi Province, China (Peoples Republic of)****11 – 15 September 2017** |
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Group 4 Discussion: Concerns on Spectrum Management for IMT Systems

**Background**

The socio-technical evolution in the last few decades has been significantly driven by the evolution of mobile communications and has contributed to the economic and social development of both developed and developing countries. Mobile communications has become closely integrated in the daily life of the whole society. It is expected that the socio-technical trends and the evolution of mobile communications systems will remain tightly coupled together and will form a foundation for society in 2020 and beyond.

In the future, however, it is foreseen that new demands, such as more traffic volume, many more devices with diverse service requirements, better quality of user experience (QoE) and better affordability by further reducing costs, will require an increasing number of innovative solutions.

**Principles**

IMT for 2020 and beyond is envisaged to expand and support diverse usage scenarios and applications that will continue beyond the current IMT. The usage scenarios for IMT for 2020 and beyond include:

– **Enhanced Mobile Broadband**: This scenario will come with new application areas and requirements in addition to existing Mobile Broadband applications for improved performance and an increasingly seamless user experience.

– **Ultra-reliable and low latency communications**: This scenario has stringent requirements for capabilities such as throughput, latency and availability. Some examples include wireless control of industrial manufacturing or production processes, remote medical surgery, distribution automation in a smart grid, transportation safety, etc.

– **Massive machine type communications**: This scenario is characterized by a very large number of connected devices typically transmitting a relatively low volume of non-delay-sensitive data. Devices are required to be low cost, and have a very long battery life.

The importance of key capabilities in different usage scenarios are shown in the figure below.



The proliferation of smart devices (e.g. smartphones, tablets, televisions, etc.) and a wide range of applications requiring a large amount of data traffic have accelerated demand for wireless data traffic. Future IMT systems are expected to provide significant improvement to accommodate this rapidly increasing traffic demand. In addition, future IMT systems are expected to provide gigabit per-second user data rate services.

It is noted that no single frequency range satisfies all the criteria required to deploy IMT systems, particularly in countries with diverse geographic and population density. The currently available frequency bands and their bandwidth differ across countries and regions. This leads to problems associated with device complexity and possible interference issues. **Contiguous, broader and harmonized frequency bands**, aligned with future technology development, would address these problems. In particular, for scenarios requiring several hundred MHz up to at least 1 GHz, there would be a need to consider wideband contiguous spectrum above 6 GHz.

**ASSIGNMENT**

After considering the scenarios, capabilities and the spectrum implications, kindly give your views of the Spectrum Management for future IMT systems on one or more following aspects:

* The mobile data growth in your country
* The promising usage scenarios or applications
* Benefits of spectrum harmonization
* Candidate spectrum bands and related coexistence/sharing studies (e.g. C-band)
* Issues to be addressed in spectrum management

**Your response should be in the form of presentation delivered by maximum 3 persons nominated by the group. The maximum time is 15 minutes. Views within group can be divergent and all views should be presented.**