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| **World Radiocommunication Conference (WRC-19) Sharm el-Sheikh, Egypt, 28 October – 22 November 2019** |  |
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| PLENARY MEETING | **Revision 2 to**  **Document 110-E** |
|  | **4 November 2019** |
|  | **Original: English** |
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| Afghanistan/Cambodia (Kingdom of)/China (People's Republic of)/Lao People's Democratic Republic/Mongolia/Nepal (Federal Democratic Republic of)/Papua New Guinea | |
| Proposals for the work of the conference | |
| Studies on frequency-related matters for identification of International Mobile Telecommunications in the frequency band 5 925-7 125 MHz, or parts thereof, for the future development of International Mobile Telecommunications | |
| Agenda item 10 | |

10 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention.

Introduction

Today’s world is powered by information. Information and Communication Technologies (ICTs) are the building blocks supporting socio-economic development. The opportunities created by ICT development have been one of the main impacting factors on how society and economy have been evolving in recent decades. The use of the emerging technologies, including IMT-2020, will increase productivity, create new opportunities, and generate new services and employment, all of which can lead to greater well-being and further inclusiveness for the society.

IMT-2020 systems support various usage scenarios, i.e. enhanced Mobile Broadband (eMBB), massive Machine Type Communications (mMTC) and Ultra-Reliable Low-Latency Communications (URLLC). IMT-2020 could provide broader wireless connection for public mobile usage, and support various industry applications, such as smart manufacturing, smart grid and e‑health. Along with global commercialization of IMT-2020, the market demand for IMT services and applications will continue to increase, and additional spectrum is required to accommodate the increasing network capacity as well as to enable innovative IMT-2020 applications in the coming years.

Global IMT spectrum harmonization is essential for IMT industry’s economies of scale and global roaming and also facilitate coexistence with other services, which is one of the targets for ITU-R identifying IMT spectrum within the frequency bands allocated to mobile service.

WRC-19 agenda item 1.13 is considering identification of portions of the 24.25-86 GHz frequency range for IMT to provide ultra-high capacity communications at hot spots in urban and densely populated areas. In the meantime, the middle frequency range is necessary to support IMT-2020 anytime anywhere high data rate communications, since it could deliver a very good balance between coverage and capacity.

For the early deployment of 5G, at least 100 MHz contiguous spectrum bandwidth from the middle-frequency band should be assigned to each 5G network in order to support a user experienced data rate of 100 Mbps anywhere anytime and other 5G technical requirements in the extended C‑band (e.g. 3.4-3.6 GHz). Meanwhile, additional spectrum within the middle range is needed to enable future 5G deployment and meet the users’ increasing requirements for anytime anywhere high data rate communications. The spectrum within the 5 925-7 125 MHz frequency band can partially meet future IMT spectrum needs.

New radio technologies (e.g. active antenna system) used in IMT-2020 systems provide new opportunities to achieve coexistence with incumbent services with less restrictions to IMT-2020 deployment. It is believed that studies under the WRC framework can best protect incumbent services of concerned administrations, particularly in terms of protection of the fixed satellite service (Earth-to-space), by developing appropriate technical conditions for coexistence.

In order to provide flexibility for ITU Member States to adopt suitable frequency bands for future IMT implementation, the co-signatory administrations of this contribution are in favour of conducting studies on frequency related matters with a view to a possible IMT identification in the frequency band 5 925-7 125 MHz, or parts thereof.

Proposals

The co-signatory Administrations of this contribution support a new WRC-23 agenda item to consider identification of IMT in the frequency band of 5 925-7 125 MHz, or parts thereof, while providing protection to the existing services which are allocated on a primary basis and not imposing additional constraints to the development of these services.

The following attachment contains draft text for a possible Resolution related to the proposed new agenda item.

ADD AFG/CBG/CHN/LAO/MNG/NPL/PNG/110/1

Draft New Resolution [AFG/CBG/CHN/LAO/MNG/NPL/PNG-A-10] (WRC‑19)

Studies on frequency-related matters for identification of International Mobile Telecommunications in the frequency band 5 925-7 125 MHz, or parts thereof, for the future development of International Mobile Telecommunications

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

considering

*a)* that International Mobile Telecommunications (IMT) is key to providing broadband wireless connectivity on a worldwide scale and contributing to global economic growth and social development;

*b)* that there is continuous growth of mobile data traffic in all countries;

*c)* that the assignment of contiguous wide spectrum bandwidth reduces system complexity associated with carrier aggregation, which will improve energy efﬁciency and reduce network cost;

*d)* that adequate and timely availability of spectrum and corresponding regulatory provisions are essential to support the future development of IMT;

*e)* that protection of incumbent services from future IMT systems is to be ensured taking into account current usage and future development of the incumbent services without imposing additional constraints,

recognizing

*a)* that to realize global roaming and obtain the benefits of cost-effective deployment of IMT systems, it is necessary to achieve global/regional spectrum harmonization for IMT;

*b)* that incumbent services are already using parts of the frequency band 5 925-7 125 MHz and these services and their future development require appropriate protection that may involve substantial infrastructure investment,

noting

*a)* that compared with the low and high frequency bands, the 6 GHz frequency band can provide better balance for meeting needs for both coverage and capacity;

*b)* that, in particular, the frequency band 6 725-7 025 MHz is a planned band for the fixed satellite service and its use and provisions are included as a part of Appendix **30B** of the RR,

resolves to invite the 2023 World Radiocommunication Conference

to consider, based on the results of ITU‑R studies referred to in *resolves to invite ITU‑R* below, identification for the terrestrial component of IMT in the frequency band 5 925-7 125 MHz, or parts thereof, taking into account *recognizing b)* above,

resolves to invite ITU‑R

1 to study additional spectrum needs associated with the capabilities required for the terrestrial component of IMT, taking into account:

– evolving needs to meet emerging demands for IMT;

– technical and operational characteristics of IMT systems in the 6 GHz frequency band, including the evolution of IMT through advances in technology and spectrally-efficient techniques, and their deployment;

– the time-frame in which the spectrum would be needed;

2 to conduct sharing and compatibility studies between IMT and incumbent services, taken into account the need to ensure protection of existing services and their development without imposing additional constraint(s) which have allocations in the potential candidate bands and in adjacent bands on a primary basis,

invites administrations

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

**Reasons:** A draft new Resolution that supports the proposed WRC-23 agenda item for the future development of IMT.

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| ***Subject:***  Proposal for a new WRC-23 agenda item to consider IMT identification in the frequency band 5 925-7 125 MHz, or parts thereof, for the future development of IMT | |
| ***Origin: Afghanistan, Cambodia, China, Lao, Mongolia, Nepal, Papua New Guinea*** | |
| ***Proposal:***  To consider identification of IMT in frequency band 5 925-7 125 MHz, or parts thereof. | |
| ***Background/reason:***  Today’s world is powered by information. Information and Communication Technologies (ICTs) are the building blocks supporting socio-economic development. The opportunities created by ICT development have been one of the main impacting factors on how society and economy have been evolving in recent decades. The use of the emerging technologies, including IMT-2020, will increase productivity, create new opportunities, and generate new services and employment, all of which can lead to greater well-being and further inclusiveness for the society.  IMT-2020 systems support various usage scenarios, i.e. enhanced Mobile Broadband (eMBB), massive Machine Type Communications (mMTC) and Ultra-Reliable Low-Latency Communications (URLLC). IMT-2020 could provide broader wireless connection for public mobile usage, and support various industry applications, such as smart manufacturing, smart grid and e-health. Along with global commercialization of IMT-2020, the market demand for IMT services and applications will continue to increase, and additional spectrum is required to accommodate the increasing network capacity as well as to enable innovative IMT-2020 applications in the coming years.  Global IMT spectrum harmonization is essential for IMT industry’s economies of scale and global roaming and also facilitates coexistence with other services, which is one of the targets for ITU-R identifying IMT spectrum within the frequency bands allocated to mobile service.  WRC-19 agenda item 1.13 is considering identification of portions of the 24.25-86 GHz frequency range for IMT to provide ultra-high capacity communications at hot spots in urban and densely populated areas. In the meantime, the middle frequency range is necessary to support IMT-2020 anytime anywhere high data rate communications, since it could deliver a very good balance between coverage and capacity.  For the early deployment of 5G, at least 100 MHz contiguous spectrum bandwidth from the middle-frequency band should be assigned to each 5G network in order to support a user experienced data rate of 100 Mbps anywhere anytime and other 5G technical requirements in the extended C-band (e.g. 3.4-3.6 GHz). Meanwhile, additional spectrum within the middle range is needed to enable future 5G deployment and meet the users’ increasing requirements for anytime anywhere high data rate communications. The spectrum within the 5 925-7 125 MHz frequency band can partially meet future IMT spectrum needs.  New radio technologies (e.g. active antenna system) used in IMT-2020 systems provide new opportunities to achieve coexistence with incumbent services with less restrictions to IMT‑2020 deployment. It is believed that studies under the WRC framework can best protect incumbent services of concerned administrations, particularly in terms of protection of the fixed satellite service (Earth-to-space), by developing appropriate technical conditions for coexistence.  In order to provide flexibility for ITU Member States to adopt suitable frequency bands for future IMT implementation, the co-signatory administrations of this contribution are in favour of conducting studies on frequency related matters with a view to a possible IMT identification in the frequency band 5 925-7 125 MHz, or parts thereof. | |
| ***Radiocommunication Services concerned:***  5 925-6 700 MHz: fixed service, fixed-satellite service (Earth-to-space), mobile service  6 700-7 075 MHz: fixed service, fixed-satellite service (Earth-to-space), fixed-satellite service (space-to-Earth), mobile service  7 075-7 145 MHz: fixed service, mobile service | |
| ***Indication of possible difficulties:***  The proposed bands are widely used for terrestrial and space services on a co-primary basis. The coexistence of IMT and incumbent services needs to be considered. | |
| ***Previous/ongoing studies on the issue:***  During the study period 2012-2015 and in preparation for WRC-15, ITU-R conducted spectrum-related studies on IMT in accordance with Resolution **238 (WRC-15)**.  In the frequency band of 5 925-6 425 MHz, the result of sharing and compatibility studies for IMT and other services are demonstrated in the Report ITU-R F.2326-0 (for the sharing studies with fixed service) and Report ITU-R S.2367 (for the sharing studies with FSS UL). | |
| ***Studies to be carried out by:***  ITU-R SG5 | ***with participation of:***  Administrations and Sector Members of ITU-R |
| ***ITU-R Study Groups concerned:***  SG4 and other groups | |
| ***ITU resource implications, including financial implications (refer to CV 126):***  If a dedicated task group is needed to carry out research it will require a related budget. | |
| ***Common regional proposal:***  No | ***Multicountry Proposal: Yes***  ***Number of countries: 7*** |
| ***Remarks*** | |

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