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| **33 MEETING OF PERMANENT****CONSULTATIVE COMMITTEE II:****RADIOCOMMUNICATIONS****April 8 to 12, 2019****Monterrey, Nuevo Leon, Mexico** | **OEA/Ser.L/XVII.4.2.33****CCP.II-RADIO/doc.** **XX March****Original: english** |
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|  | **U.S. PROPOSAL ON WRC-19 AGENDA ITEM 1.13** **(37-43.5 GHz)** |  |
|  | **(Item on the Agenda: 3.1)** |  |
|  | **(Document submitted by the delegation of the United States of America)** |  |

Introduction

This document contains an attachment including the updated USA proposal on WRC-19 Agenda Item 1.13 (37 – 43.5 GHz) for consideration in CITEL’s preparation to WRC-19 Agenda Item 1.13.

**ATTACHMENT**

**Agenda Item 1.13**: *to consider identification of frequency bands for the future development of International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution* ***238******(WRC-15)***

**Background Information**:

Broadband plays an increasingly crucial role in providing access to businesses and consumers worldwide. According to International Telecommunications Union (ITU) statistics, “Mobile-broadband subscriptions have grown more than 20% annually in the last five years and are expected to reach 4.3 billion globally by end 2017” while “Mobile-broadband prices as a percentage of GNI per capita halved between 2013 and 2016 worldwide.”[[1]](#footnote-1) The mobile industry continues to drive technological innovations for International Mobile Telecommunications (IMT) in order to meet evolving and increasing user demands. In early 2012, ITU-R embarked on a program to develop “IMT for 2020 and beyond.” In November 2015, ITU-R approved Recommendation ITU-R M.2083 “Framework and overall objectives of the future development of IMT for 2020,” which highlights three key usage scenarios for IMT-2020: enhanced mobile broadband, massive machine-type communications, and ultra-reliable and low-latency communications. Work within the ITU-R as well as the mobile industry continues on the development of specifications for IMT-2020.

As part of the preparations for WRC-19 agenda item 1.13, ITU-R studies have concluded that sharing between IMT and other incumbent services operating within the 37 to 43.5 GHz frequency range is feasible. For example with respect to the Fixed Satellite Service (FSS), Mobile Satellite Service (MSS), and Broadcasting Satellite Service (BSS) operating in the space to Earth direction in 37-42.5 GHz, the cross-border interference studies conclude that there were large interference margins ensuring protection of receive earth stations. In the Earth-to-space direction in 42.5-43.5 GHz, the studies show sharing is feasible, albeit with smaller interference margins. For Fixed Service (FS) operations in 37-43.5 GHz, studies showed a few cases of interference when the FS system pointed directly across the IMT deployment area, which is most likely not a realistic scenario as operators typically design their FS links in a dense urban environment to avoid the clutter and noisy conditions.

International spectrum harmonization is a key component to the success of spectrum based service offerings, including introduction of mobile broadband services such as IMT. International spectrum harmonization facilitates global roaming, economies of scale, and commonality of equipment and is not limited to situations in which all regions have identical spectrum allocations.

In light of the ITU-R sharing studies showing feasibility of sharing and the benefits of international harmonization, this proposal supports an identification for IMT across the 37-43.5 GHz frequency range as well as upgrading the secondary allocation for the Mobile Service to a co-primary allocation in 40.5-42.5 GHz.

**Proposal**:

ARTICLE 5

**Frequency allocations**

**Section IV – Table of Frequency Allocations**(See No. **2.1**)

**MOD** **USA/1.13/1**

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| **34.2-40 GHz** |
| **Allocation to services** |
| **Region 1** | **Region 2** | **Region 3** |
| **37-37.5** FIXED MOBILE except aeronautical mobile ADD 5.IMT SPACE RESEARCH (space-to-Earth)  5.547 |
| **37.5-38** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile ADD 5.IMT SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547 |
| **38-39.5** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE ADD 5.IMT Earth exploration-satellite (space-to-Earth) 5.547 |
| **39.5-40** FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE ADD 5.IMT MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547 |

**Reasons:**  As studies show sharing with other services operating in 37-43.5 GHz is feasible, these modifications provide an identification for IMT in the frequency range 37-43.5 GHz.

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| **MOD** **USA/1.13/2****40-47.5 GHz** |
| **Allocation to services** |
| **Region 1** | **Region 2** | **Region 3** |
| **40-40.5** EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE ADD 5.IMT MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth) |
| **40.5-41**FIXEDFIXED-SATELLITE (space-to-Earth)BROADCASTINGBROADCASTING-SATELLITEMOBILE ADD 5.IMT5.547 | **40.5-41**FIXEDFIXED-SATELLITE (space-to-Earth) 5.516BBROADCASTINGBROADCASTING-SATELLITEMOBILE ADD 5.IMTMobile-satellite (space-to-Earth)5.547 | **40.5-41**FIXEDFIXED-SATELLITE (space-to-Earth)BROADCASTINGBROADCASTING-SATELLITEMOBILE ADD 5.IMT5.547 |
| **41-42.5** FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE MOBILE ADD 5.IMT 5.547 5.551F 5.551H 5.551I |
| **42.5-43.5** FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile ADD 5.IMT RADIO ASTRONOMY 5.149 5.547 |

**Reasons:**  As studies show sharing with other services operating in 37-43.5 GHz is feasible, these modifications provide an identification for IMT in the frequency range 37-43.5 GHz and the Mobile Service is upgraded from a secondary allocation to a primary allocation in 40.5-42.5 GHz.

**ADD USA/1.13/3**

**5.IMT** The 37-43.5 GHz frequency range is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution [**IMT – 40GHZ]**. This identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations.

**Reasons:** As studies show sharing with other services operating in 37-43.5 GHz is feasible, these modifications provide an identification for IMT in the frequency range 37-43.5 GHz and the Mobile Service is upgraded from a secondary allocation to a co-primary allocation in 40.5-42.5 GHz.

**ADD USA/1.13/4**

DRAFT NEW RESOLUTION [IMT-40GHZ] (WRC‑19)

**Terrestrial Component of International Mobile Telecommunications in the frequency band 37-43.5 GHz**

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

 *considering*

*a)* that International Mobile Telecommunications (IMT), including IMT-2000, IMT‑Advanced and IMT‑2020, is the ITU vision of global mobile access;

*b)* that the evolution of IMT is being studied within ITU‑R;

*c)* that IMT systems are envisaged to provide increased peak data rates and capacity that may require a larger bandwidth;

*d)* 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;

*e)* that IMT systems are now being evolved to provide diverse usage scenarios and applications such as enhanced mobile broadband, massive machine-type communications and ultra-reliable and low-latency communications;

*f)* that ultra-low latency and very high bit rate applications of IMT will require larger contiguous blocks of spectrum than those available in frequency bands that are currently identified for use by administrations wishing to implement IMT;

*g)* that the properties of higher frequency bands, such as shorter wavelength, would better enable the use of advanced antenna systems including MIMO and beam-forming techniques in supporting enhanced broadband;

*h)* that harmonized worldwide bands for IMT are desirable in order to achieve global roaming and the benefits of economies of scale;

*i)* that adequate and timely availability of spectrum and supporting regulatory provisions is essential to realize the objectives in Recommendation ITU‑R M.2083;

*noting*

*a)* Resolutions **223 (Rev.WRC-15)** and **224 (Rev.WRC‑15)** which also relate to the terrestrial component of IMT;

*b*) Resolution 75 (Rev. WRC-12) – “Development of the technical basis for determining the coordination area for coordination of a receiving earth station in the space research service (deep space) with transmitting stations of high-density applications in the fixed service in the 31.8-32.3 GHz and 37-38 GHz bands’;

*c)* Resolution 143 (Rev. WRC-07) – “Guidelines for the implementation of high-density applications in the fixed satellite service in frequency bands identified for these applications”;

*d)* Resolution ITU‑R 65 addresses the principles for the process of development of IMT for 2020 and beyond, and that Question ITU‑R 77‑7/5 considers the needs of developing countries in the development and implementation of IMT;

e) Recommendation ITU-R M.2083 provides IMT Vision - "Framework and overall objectives of the future development of IMT for 2020 and beyond";

*f)* Report ITU‑R M.2376, on technical feasibility of the terrestrial component IMT in the frequency bands above 6 GHz;

*g)* Report ITU‑R M.2370, on trends impacting future IMT traffic growth beyond the year 2020 and estimates global traffic demands for the period 2020 to 2030,

*recognizing*

*a)* that there is a lead time between the allocation of frequency bands by World Radiocommunication Conferences and the deployment of systems in those bands, and that timely availability of wide and contiguous blocks of spectrum is therefore important to support the development of IMT;

*b)* the identification of high-density applications in the fixed-satellite service in the space-to-Earth direction in the bands 39.5-40 GHz in Region 1, 40-40.5 GHz in all Regions and 40.5-42 GHz in Region 2 (see No. 5.516B);

*c)* that Resolution 752 (WRC-07) established a power limit of -10 dBW for stations in the mobile service in the 36-37 GHz band in order to facilitate sharing between active and passive services in this band;

*d)* that the relevant standards organizations have standardized an unwanted emission level of -13 dBm/MHz from IMT stations operating in the 37-40 GHz band, which is below the limit in recognizing c);

*resolves*

that administrations wishing to implement the terrestrial component of IMT consider the use of frequency band 37-43.5 GHz, or parts thereof, identified for IMT in RR **No.** **5.IMT** and the benefits of harmonized utilization of spectrum for the terrestrial component of IMT taking into account the latest relevant ITU-R Recommendations;

*invites ITU‑R*

1 to develop harmonized frequency arrangements to facilitate IMT deployment in the frequency bands 37-43.5 GHz taking into account the results of sharing and compatibility studies;

2 to continue providing guidance to ensure that IMT can meet the telecommunication needs of the developing countries and rural areas in the context of the studies referred to above;

3to develop ITU‑R Recommendations, as appropriate, to provide information on possible coordination and protection measures for the existing and future SRS earth stations operating in the frequency band 37-38 GHz;

4 to update existing ITU-R Recommendations or develop new ITU-R Recommendations, as appropriate, to provide information on possible coordination and protection measures for the RAS stations in the frequency band 42.5-43.5 GHz;

5 to develop generic unwanted emission characteristics for mobile and base stations of the terrestrial radio interfaces of IMT-2020.

**Reasons:** The identification of the band 37-43.5 GHz to IMT will help satisfy the need for additional spectrum in the bands above 24 GHz.

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1. ICT Facts and Figures 2017 at 4 and 5, https://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2017.pdf [↑](#footnote-ref-1)