



**ORGANIZACION DE LOS ESTADOS AMERICANOS  
ORGANIZATION OF AMERICAN STATES**

**Comisión Interamericana de Telecomunicaciones  
Inter-American Telecommunication Commission**

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**33 MEETING OF PERMANENT  
CONSULTATIVE COMMITTEE II:  
RADIOCOMMUNICATIONS  
April 8 to 12, 2019  
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**U.S. PROPOSAL ON WRC-19 AGENDA ITEM 1.13**

**(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 (24.25 – 27.5 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.”<sup>1</sup> 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.

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. In the United States, the Federal Communications Commission (FCC) is in the process of auctioning the 24.25-24.45 and 24.75-25.25 GHz frequency bands for 5G.<sup>2</sup> In addition, the FCC is still exploring use of the 25.25-27.5 GHz frequency bands for flexible fixed and mobile services.<sup>3</sup>

In light of the ITU-R sharing studies showing feasibility of sharing with other services operating in the 24.25-27.25 GHz band and the benefits of international harmonization, this proposal supports an identification for IMT across the 24.25 – 27.5 GHz frequency range as well as upgrading the secondary allocation for the Mobile Service to a co-primary allocation in 24.25-25.25 GHz. Protection of passive services operating in the adjacent band is addressed through a proposed revision to Resolution 750 (WRC-15).

Finally, there is no need to specify other technical and operational constraints on IMT associated with this proposed identification for IMT. Operational characteristics that are used by cellular providers, such as base station downtilt, that change on time scales needed to minimize intra- and inter-cell interference and also guarantee quality of service should not be encoded in the Radio

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<sup>1</sup> ICT Facts and Figures 2017 at 4 and 5, <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2017.pdf>

<sup>2</sup> <https://www.fcc.gov/auction/102/factsheet>

<sup>3</sup> <https://docs.fcc.gov/public/attachments/FCC-18-73A1.pdf> Page 30-35.

Regulations.

**Proposal:**

ARTICLE 5

**Frequency allocations**

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

**MOD USA/1.13/1**

**22-24.75 GHz**

Allocation to services		
Region 1	Region 2	Region 3
<b>24.25-24.45</b> FIXED MOBILE except aeronautical mobile ADD 5.A113 ADD 5.338A	<b>24.25-24.45</b> MOBILE except aeronautical mobile ADD 5.A113 RADIONAVIGATION ADD 5.338A	<b>24.25-24.45</b> RADIONAVIGATION FIXED MOBILE ADD 5.A113 ADD 5.338A
<b>24.45-24.65</b> FIXED INTER-SATELLITE MOBILE except aeronautical mobile ADD 5.A113 ADD 5.338A	<b>24.45-24.65</b> INTER-SATELLITE MOBILE except aeronautical mobile ADD 5.A113 RADIONAVIGATION 5.533 ADD 5.338A	<b>24.45-24.65</b> FIXED INTER-SATELLITE MOBILE ADD 5.A113 RADIONAVIGATION 5.533 ADD 5.338A
<b>24.65-24.75</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE except aeronautical mobile ADD 5.A113 ADD 5.338A	<b>24.65-24.75</b> INTER-SATELLITE MOBILE except aeronautical mobile ADD 5.A113 RADIOLOCATION- SATELLITE (Earth-to-space) ADD 5.338A	<b>24.65-24.75</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE ADD 5.A113  5.533 ADD 5.338A

**Reasons:** As studies show sharing with other services operating in 24.25-27.5 GHz is feasible, these modifications provide an identification for IMT in the frequency range 24.25-27.5 GHz and a primary allocation to the Mobile service, except aeronautical mobile, in 24.25 – 25.25 GHz. Protection of passive services in 23.6-24 GHz is addressed through the modification of No. 5.338A.

**MOD USA/1.13/2**

**24.75-29.9 GHz**

<b>Allocation to services</b>		
<b>Region 1</b>	<b>Region 2</b>	<b>Region 3</b>
<b>24.75-25.25</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.532B MOBILE except aeronautical mobile ADD 5.A113	<b>24.75-25.25</b> FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE except aeronautical mobile ADD 5.A113	<b>24.75-25.25</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE ADD 5.A113
<b>25.25-25.5</b> FIXED INTER-SATELLITE 5.536 MOBILE ADD 5.A113 Standard frequency and time signal-satellite (Earth-to-space)		
<b>25.5-27</b> EARTH EXPLORATION-SATELLITE (space-to Earth) 5.536B FIXED INTER-SATELLITE 5.536 MOBILE ADD 5.A113 SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A		
<b>27-27.5</b> FIXED INTER-SATELLITE 5.536 MOBILE ADD 5.A113	<b>27-27.5</b> FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE ADD 5.A113	

**Reasons:** As studies show sharing with other services operating in 24.25-27.5 GHz is feasible, these modifications provide an identification for IMT in the frequency range 24.25-27.5 GHz and a primary allocation to the Mobile service, except aeronautical mobile, in the frequency range 24.25 – 25.25 GHz.

**ADD USA/1.13/3**

**5.A113** The 24.25-27.5 GHz frequency range is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution [IMT – 26GHZ]. 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 24.25-27.5 GHz is feasible, these modifications provide an identification for IMT in the frequency range 24.25-27.5 GHz. This facilitates harmonized worldwide bands for IMT, which are highly desirable in order to achieve global roaming and the benefits of economies of scale.

**MOD USA/1.13/4**

**5.338A** In the frequency bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 24.25-24.75 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz, 51.4-52.6 GHz, 81-86 GHz and 92-94 GHz, Resolution **750 (Rev.WRC-19)** applies. (WRC-19)

**Reasons:** Consequential modification as mandatory limits are now proposed to protect passive services operating in the 23.6-24 GHz band.

**ADD USA/1.13/5**

DRAFT NEW RESOLUTION [IMT-26GHZ] (WRC-19)

**Terrestrial Component of International Mobile Telecommunications in the frequency band  
24.25-27.5 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)** also address the terrestrial component of IMT;
- b) Resolution **750 (Rev. WRC-19)** establishes limits on unwanted emissions for the protection of passive services
- c) 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;

- d) Recommendation ITU-R M.2083 provides IMT Vision - "Framework and overall objectives of the future development of IMT for 2020 and beyond";
- e) Report ITU-R M.2376, on technical feasibility of the terrestrial component IMT in the frequency bands above 6 GHz;
- f) 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) that **5.536A** states that administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed or mobile services operated by administrations;

*resolves*

that administrations wishing to implement the terrestrial component of IMT consider the use of frequency band 24.25-27.5 GHz identified for IMT in RR **No. 5.A113** 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 24.25-27.5 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;
- 3 to develop ITU-R Recommendations, as appropriate, to provide information on possible coordination measures for IMT and the existing and future EESS/SRS earth stations operating in the frequency band 25.5-27 GHz;
- 4 to update existing ITU-R Recommendations or develop new ITU-R Recommendations, as appropriate, to provide information on possible coordination measures for IMT and the RAS stations operating in the frequency band 23.6-24 GHz;

**Reasons:** The identification to IMT of the frequency band 24.25-27.5 GHz will help satisfy the need for additional spectrum in the bands above 24 GHz.

**MOD USA/1.13/6**

**RESOLUTION 750 (REV.WRC-19)**

**Compatibility between the Earth exploration-satellite service (passive) and relevant active services**

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

...

*recognizing*

- a) that studies documented in Report ITU-R SM.2092 do not consider point-to-multipoint communication links in the fixed service in the frequency bands 1 350-1 400 MHz and 1 427-1 452 MHz;
- b) that, in the frequency band 1 427-1 452 MHz and 24.25-27.5 GHz, mitigation measures, such as channel arrangements, improved filters and/or guardbands, may be necessary in order to meet the limits of unwanted emission for IMT stations in the mobile service specified in Table 1-1 of this Resolution;
- c) that, in the frequency band 1 427-1 452 MHz and 24.25-27.5 GHz, IMT mobile stations typically perform better than the equipment specifications as stated by relevant standards organizations, which may be taken into account in meeting the limits specified in Table 1-1 (see also sections 4 and 5 of Report ITU-R RS.2336),

*resolves*

1 that unwanted emissions of stations brought into use in the frequency bands and services listed in Table 1-1 below shall not exceed the corresponding limits in that table, subject to the specified conditions;

...

TABLE 1-1

<b>EESS (passive) band</b>	<b>Active service band</b>	<b>Active service</b>	<b>Limits of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) band<sup>1</sup></b>
23.6-24.0 GHz	22.55-23.55 GHz	Inter-satellite	-36 dBW in any 200 MHz of the EESS (passive) band for non-geostationary (non-GSO) inter-satellite service (ISS) systems for which complete advance publication information is received by the Bureau before 1 January 2020, and -46 dBW in any 200 MHz of the EESS (passive) band for non-GSO ISS systems for which complete advance publication information is received by the Bureau on or after 1 January 2020

	24.25-24.75 GHz	Mobile	-20 dBW in any 200 MHz of the EESS (passive) band for IMT base stations -20 dBW in any 200 MHz of the EESS (passive) band for IMT mobile stations
...	...	...	...

<sup>1</sup> The unwanted emission power level is to be understood here as the level measured at the antenna port, unless it is specified in terms of total radiated power (TRP) in the unwanted domain. TRP is the aggregate of the radiated power from all antenna elements.

**Reasons:** To identify the limits of unwanted emissions from IMT into the 23.6-24 GHz passive band, taking into account the 250 MHz guard band 24-24.25 GHz and IMT operations up to 500 MHz away (24.25-24.75 GHz).

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