

PLENARY MEETING

**Addendum 3 to
Document 6159(Add.13)-
E
29 August 2019
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Member States of the Inter-American Telecommunication Commission (CITEL)

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 1.13

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)**;

Part 3 – Frequency band 37-43.5 GHz

BACKGROUND

The aim of 5G is to create a more ‘hyper connected’ society by more comprehensively, and intelligently, integrating LTE, Wi-Fi and cellular IoT technologies, together with at least one new 5G radio interface. This will allow mobile networks to dynamically allocate resources to support the varying needs of a hugely diverse set of connections – ranging from industrial machinery in factories, to automated vehicles as well as smartphones. The significant extra capacity of the 5G radio network will need to be supported with higher bandwidth backhaul, including fibre and microwave networks. Satellite networks should also be considered for 5G backhaul while noting their limited ability to satisfy 5G’s expected latency and bandwidth requirements

A central component in the evolution of all mobile technology generations has been the use of increasingly wide frequency bands to support higher speeds and larger amounts of traffic. 5G is no different, ultra-fast 5G services will require large amounts of spectrum including above 24 GHz where wide bandwidths are more readily available. Without making these higher frequency bands available for 5G, it may not be possible to deliver a step-change in mobile broadband speeds and support rapidly growing mobile data traffic, especially in busy urban areas.

Spectrum above 24 GHz is well recognised worldwide as being the key component for the fastest 5G services. Without them, 5G won’t be able to deliver significantly faster data speeds or support projected extensive mobile traffic growth.

ARTICLE 5

Frequency allocations

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

MOD IAP/6159A13A3/1

34.2-40 GHz

Allocation to services		
Region 1	Region 2	Region 3
37-37.5	FIXED MOBILE except aeronautical mobile ADD 5.BCD113 SPACE RESEARCH (space-to-Earth) 5.547	
37.5-38	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile ADD 5.BCD113 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.BCD113 Earth exploration-satellite (space-to-Earth) 5.547	
39.5-40	FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE ADD 5.BCD113 MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547	

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.

MOD IAP/6159A13A3/2

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.BCD113 MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)	
40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE MOBILE ADD 5.BCD113 5.547	40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE MOBILE ADD 5.BCD113 Mobile-satellite (space-to-Earth) 5.547	40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE MOBILE ADD 5.BCD113 5.547
41-42.5	FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE MOBILE ADD 5.BCD113 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.BCD113 RADIO ASTRONOMY 5.149 5.547	

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.

ADD IAP/6159A13A3/3

5.BCD113 The band 37-43.5 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution [IAP/BCD113-40GHZ] (WRC-19). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Because of the potential deployment of high-density applications in the fixed-satellite service 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), administrations should further take into account potential constraints to IMT in these bands, as appropriate.

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. The footnote recognises the HDFSS identification and invites administration to take that into account when planning.

ADD IAP/6159A13A3/4

**DRAFT NEW RESOLUTION [IAP-1PROYECTO DE NUEVA RESOLUCIÓN
[IAP/BCD113-40GHZ] (WRC 19)]**

Terrestrial Component of IMT in the frequency band 37.5-43.5 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 intended to provide telecommunication services on a worldwide scale, regardless of location and type of network or terminal;
- b) that the evolution of IMT is being studied within ITU-R;
- c) that harmonized worldwide bands for IMT are desirable in order to achieve global roaming and the benefits of economies of scale;
- d) that adequate and timely availability of spectrum and supporting regulatory provisions is essential to realize the objectives in Recommendation ITU-R M.2083;
- e) 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;
- f) 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;
- g) 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;
- h) 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,

noting

- a) that Resolution 143 (Rev. WRC-07) establishes the “Guidelines for the implementation of high-density applications in the fixed satellite service in frequency bands identified for these applications”;
- b) that Recommendation ITU-R M.2083 provides IMT Vision - "Framework and overall objectives of the future development of IMT for 2020 and beyond";
- c) that Report ITU-R M.2320 addresses future technology trends of terrestrial IMT systems;
- d) that Report ITU-R M.2370 addresses 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

1 that administrations wishing to implement IMT consider the use of frequency band 37-43.5 GHz, or parts thereof, identified for IMT in **No. 5.BCD113** and the benefits of harmonized utilization of the spectrum for the terrestrial component of IMT taking into account the latest relevant ITU-R Recommendations;

2 that, when deploying outdoor base stations in the frequency band 42.5-43.5 GHz, it shall be ensured that each antenna normally¹ transmits only with the main beam pointing below the horizon and the antenna shall have mechanical pointing below the horizon except when the base station is only receiving,

invites administrations

to ensure that, when considering, nationally or regionally, the spectrum to be used for IMT, due attention is paid to the need for spectrum for other services to which the band 37-43.5 GHz is allocated, including FSS earth stations that could be deployed in a ubiquitous manner (i.e. small user earth stations) 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, as per **No. 5.516B**,

invites ITU-R

1 to develop harmonized frequency arrangements to facilitate IMT deployment in the frequency bands 37-43.5 GHz;

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 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;

¹ With reference to *resolves 2* it is assumed that only a very limited number of indoor terminals with positive elevation will be communicating with base stations.

4. to develop ITU-R Reports and/or Recommendations, as appropriate, to ensure coexistence between IMT and FSS, including HDFSS as per No. **5.516B**.
- 5 to 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;
- 6 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.