

ATTACHMENT (A)**UNITED STATES OF AMERICA
DRAFT PRELIMINARY VIEWS FOR WRC-23**

Agenda Item 1.7: Studies on a possible new allocation to the aeronautical mobile-satellite (R) service within the frequency band 117.975-137 MHz in order to support aeronautical VHF communications in the Earth-to-space and space-to-Earth directions

BACKGROUND: The frequency band 117.975- 137 MHz is allocated on a primary basis to the AM(R)S service and used for air-ground, ground-air and air-air systems, providing critical voice and data communications for air traffic management and airline operational control on a global basis. Resolution **428 (WRC-19)** invites WRC-23 to consider a new primary allocation to the AMS(R)S based on the results of sharing and compatibility studies. This new AMS(R)S service is intended to support direct pilot-air traffic controller voice as well as data communications in oceanic and remote areas without modifying aircraft equipment.

In the United States, the AM(R)S allocation in 117.975-137 MHz supports the primary Air Traffic Control (ATC) and Aeronautical Operational Control (AOC) systems for all manned aircraft. This includes both standard voice communications but also the recently introduced national ATC datalink system, utilizing data messages for ATC and AOC functions to aircraft in the air and on the ground. Current terrestrial voice and datalink networks in the US provide coverage over the entire United States up to 40,000ft altitude, including up to 250+ nautical miles from the national coastline as aircraft transition from US oceanic to terrestrial control.

Additionally, there is significant utilization by terrestrial VHF systems within this allocation today, thus severely limiting options for new regional or national satellite frequency assignments that would need to be harmonized with existing terrestrial assignments.

U.S. VIEW: The United States supports technical and regulatory studies under Resolution **428 (WRC-19)** for a new primary AMS(R)S service in the 117.975 – 137 MHz frequency band provided such an allocation is found to be compatible with existing services. The United States is of the view that this new allocation must protect current systems using existing primary services and should not constrain the planned usage of those systems, for both ground stations and aircraft under their control.

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Agenda Item 1.2: *to consider identification of the frequency bands 3 300-3 400 MHz, 3 600-3 800 MHz, 6 425-7 025 MHz, 7 025-7 125 MHz and 10.0-10.5 GHz for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution 245 (WRC-19);*

BACKGROUND

Mobile broadband plays a crucial role in providing access to businesses and consumers worldwide. In 2020, the first year of the pandemic, the number of Internet users grew by 10.2 per cent, the largest increase in a decade, driven by developing countries where Internet use went up 13.3 per cent. According to ITU estimates, the number of active mobile-cellular telephone subscriptions per 100 inhabitants continues to grow strongly, reaching 110 subscriptions per 100 inhabitants, including a record number of mobile subscriptions with broadband capacity (3G or better).¹ Ninety-five percent of the world's population lives within reach of a mobile broadband service, and the relatively small difference in the number of subscriptions between developed and developing countries demonstrates that connectivity is a priority among people in countries at all levels of development.²

The demand for mobile wireless broadband applications such as IMT continues to grow dramatically as does the need for access to radio spectrum to support that growth.³ Fifth generation (5G) provides improved data rates and reduced latency. Importantly 5G has been designed to enable capabilities in a wide range of industries including healthcare, transportation, manufacturing, education, and telemedicine; 5G is expected to have a broad impact on our economies and societies. With demand for IMT applications continuing to increase, additional IMT spectrum identifications in the mid-range frequency bands – with its favourable mix of coverage and capacity - will need to be considered in order to enable future deployments, where

¹ <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2021.pdf>

² <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2021.pdf>

³ Ericsson predicts that total mobile traffic is expected to increase by a factor of five over the next six years, reaching 164 exabytes per month by the end of 2025. Ericsson reports that today, smartphones generate about 95% of total mobile data traffic, and that by 2025, 5G networks will carry about half of the world's mobile data traffic. *See* Ericsson, Mobility Report at 20 (2020), <https://www.ericsson.com/49da93/assets/local/mobility-report/documents/2020/june2020-ericsson-mobility-report.pdf>. Cisco estimates that, by 2022, 22% of global internet traffic will come from mobile networks, up from 12% in 2017. *See* Cisco Systems Inc., Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2017-2022 White Paper (2019), <https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-738429.html>.

these applications and services might be difficult to implement using lower or higher frequency bands.

6 425-7 025 MHz and 7 025-7 125 MHz

The 6 425 – 7 125 MHz band is already allocated to the mobile service on a primary basis. As a broadly defined service allocation,⁴ it affords administrations the flexibility to allow the use of various mobile systems and applications of the mobile service (e.g. electronic news gathering and other video relay and auxiliary services, IMT, RLAN) based on their national priorities and requirements.

The 6 425-7 125 MHz frequency range is allocated to the fixed satellite service (6 425-7 075 MHz), fixed and mobile services and portions of the band are used for Aeronautical Mobile Telemetry (AMT) in Region 2 (No. **5.457C**). Fixed services include microwave links of a critical nature deployed by public safety, utilities, rail and IMT backhaul for telecommunications operators. The space-to-Earth allocation to the fixed-satellite service in the band 6 700-7 075 MHz is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service.

Regarding the Fixed Satellite Service (FSS) use of the band:

- 6 425-7 075 MHz: allocated globally to FSS.
 - o 6 425-6 725 MHz: allocated to the FSS (Earth-to-space) in all Regions.
 - o 6 725-7 025 MHz: allocated to the FSS (Earth-to-space) and subject to the provisions of Appendix **30B** (No. **5.441**). The FSS allotment in 6 725-7 025 MHz is particularly important to the developing countries.
 - o 6 700-7 075 MHz: allocated to the FSS (space-to-Earth), limited to feeder links for non-geostationary satellite systems of the mobile-satellite service and is subject to coordination under No. **9.11A** (No. **5.458B**).
- 7 025-7 075 MHz: Satellite Digital Audio Radio Services (SDARS) for GEO feeder links in the Earth-space direction to provide audio programming to subscribers in the United States, Canada and the Caribbean.

In 2020, the United States made 1200 megahertz of spectrum available for unlicensed use in 5 925-7 125 MHz. This decision allows unlicensed devices (e.g., Wi-Fi 6E, LAA, NR-U) to share this spectrum with incumbent services under rules that are carefully crafted to protect the licensed services and to enable both unlicensed and licensed operations to continue to thrive throughout the band. A number of countries, including nine CITELE administrations, have already decided to allow license-exempt use of the frequency band 6 425-7 125 MHz and others are considering such use. Global regulatory harmonization would ensure economies of scope and scale to enable commercially viable unlicensed device 6 GHz ecosystem. Accordingly, the United States proposes no change to the Radio Regulations for the bands 6 425– 7 125 MHz globally in order to support the flexible use of the mobile service allocation, including for RLAN use, and supports the further harmonization of the 6 GHz band for unlicensed devices.

⁴ See Rec. ITU-R SM.1133, “Spectrum utilization of broadly defined services.”

Proposal:

ARTICLE 5

Frequency allocations**Section IV – Table of Frequency Allocations**
(See No. 2.1)**NOC** USA/1.2/6 GHz/1**5 570-6 700 MHz**

| Allocation to services | | |
|------------------------|---|----------|
| Region 1 | Region 2 | Region 3 |
| ... | | |
| 5 925-6 700 | FIXED 5.457 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE 5.457C 5.149 5.440 5.458 | |

6 700- 7 250 MHz

| Allocation to services | | |
|------------------------|---|----------|
| Region 1 | Region 2 | Region 3 |
| 6 700-7 075 | FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.458 5.458A 5.458B | |
| 7 075-7 145 | FIXED MOBILE 5.458 5.549 | |
| ... | | |

Reasons: No change to the Table of Frequency Allocations in the band 6 425 – 7 125 MHz in order to harmonize license-exempt use of the band. Regulatory harmonization will create economies of scope and scale and produce a robust equipment market, benefitting consumers and national economies worldwide. Given the existing mobile allocation, administrations may deploy and operate systems and applications of the mobile service (e.g. IMT or RLAN) based on their national priorities and requirements.

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Note: This preliminary view is presented as a modification to the existing preliminary view under consideration in CITELE PCC.II (Document GT-CMR23-2021-38-024). Changes proposed by the United States are shown in tracked changes.

Agenda Item 9.1, topic C: *Study the use of International Mobile Telecommunication system for fixed wireless broadband in the frequency bands allocated to the fixed services on primary basis, in accordance with Resolution 175 (WRC-19);*

BACKGROUND:

Source: Brazil 5373/USA

This topic was proposed as a new agenda item to WRC-19 through a multi-country proposal (Bahrain, United Arab Emirates, Kuwait and Tunisia) to study fixed wireless broadband applications in the bands allocated to the fixed service that could use IMT technology. The rationale provided by these administrations for this topic is to develop a similar ecosystem for fixed wireless broadband as the IMT ecosystem to encourage economies of scale and equipment interoperability between different fixed broadband equipment suppliers. It is noted that broadband applications in the fixed service and desired economies of scale can already be achieved through the use of different technologies including IMT technology-based systems.

Source: Mexico 5396

On the last days of the World Radiocommunication Conference of 2019 (WRC-19) of the Radiocommunication sector of the International Telecommunication Union (ITU-R), some administrations proposed that, for the next World Radiocommunication Conference, consideration would be given to examining the use of international mobile telecommunications (IMT) for fixed wireless broadband systems in some frequency bands allocated to fixed services on a primary basis.

After several conversations, both at WRC-19 and at the first preparatory meeting for WRC-23 (CPM-23), it was agreed to include this topic on the agenda of WRC-23 as agenda item 9.1.c, in the understanding that the topics included on agenda item 9 could and should not lead to changes in the ITU Radio Regulations (RR) of ITU-R.

It should be mentioned that other administrations attending the CPM-23 asked several questions about this topic, since it is a common practice for work carried out within the ITU-R to be conducted under conditions of technological neutrality. Furthermore, there are recommendations that address the use of fixed wireless access systems in frequency bands allocated to fixed services, such as recommendations ITU-R F.757-4,⁵ ITU-R F.1401-1,⁶ ITU-R F.1402,⁷ and ITU-R F.1488.⁸

⁵ <https://www.itu.int/rec/R-REC-F.757/en>

⁶ <https://www.itu.int/rec/R-REC-F.1401/en>

ISSUES:**Source: Brazil 5373 /USA**

To study fixed wireless broadband applications that use IMT technology in the frequency bands allocated to the fixed service on a primary basis, taking into account the relevant ITU-R studies, Handbooks, Recommendations and Reports.

The results of these studies are to be reported to WRC-23 by the Director of the Radiocommunication Bureau, as are all topics under Agenda item 9.1.

Source: USA

The ITU-R has already established a framework in which IMT and other mobile technologies can be used to provide fixed wireless access, including broadband access, in frequencies allocated to the fixed service on a primary basis. However, many of the F.Series Recommendations regarding FWA are outdated and do not reflect the current capability of wireless broadband technology. New or revised Reports and/or Recommendations could be developed to reflect the current state of fixed wireless broadband technologies, including that of IMT. Study Group 5 may continue to review and revise these documents during the next study cycle under relevant ITU-R Questions.

DISCUSSION**Source: Mexico 5396**

It is well known that the topics included under agenda item 9 of WRC-23 do not have the necessary authorizations to modify the Radio Regulations, because in accordance with operative clause 9 of Resolution 811 and the terms of Article 7 of the ITU Convention, its application is confined to examining and approving the report of the Director of the Radiocommunication Bureau on the activities of the ITU-R since the last conference. In addition, in the “Structure of the sections of the agenda items in the chapters of the draft CPM report to WRC-23” contained in Administrative Circular CA/251, no consideration is given to “Methods to satisfy the agenda item” or the “Regulatory and procedural considerations.” As a result, it is not deemed necessary to establish methods that could meet the requirements of an agenda item, or include regulatory or procedural considerations such as those that are normally included with respect to agenda items in the Report on Preparations prior to a WRC.

Furthermore, in Resolution 175, which includes the matter relative to topic 9.1.c, no frequency band in particular is specified and there is no recommendation made to ITU-R to conduct studies of coexistence and compatibility with other services regarding the use of IMTs in bands allocated to fixed services. Moreover, there is no ITU-R Working Party, including WP 5D that is in charge of everything in connection with IMT, that has sent any technical parameters to Working Parties 5A and 5C, which were designated to be in charge of topic 9.1.c, because of which it is not expected that the ITU-R will submit any studies on coexistence, compatibility, and/or similar aspects of this topic 9.1.c in WRC-23.

Thus, in view of the above, the Administration of Mexico submits to Permanent Consultative Committee II: Radiocommunications (PCC.II) of CITEL the following preliminary view.

⁷ <https://www.itu.int/rec/R-REC-F.1401/en>

⁸ <https://www.itu.int/rec/R-REC-F.1488/en>

PRELIMINARY VIEWS:**Source: Brazil 5373**

The Brazilian Administration supports studies to investigate the use of IMT technologies for fixed wireless broadband in the bands allocated to the fixed service. Brazil is of the view that changes to the Radio Regulations are outside the scope of Agenda Item 9.1 and that existing ITU-R Recommendations/Reports/Handbooks should be taken into account in the assessment of Topic 9.1.c).

Source: Mexico 5396

The Administration of Mexico considers that topic 9.1.c of WRC-23 must be developed in accordance with what is set forth in operative clause 9 of Resolution 811, consisting of examining and approving the Report of the Director of the Radiocommunication Bureau on the activities of the ITU-R since WRC-19, as well as with the structure of the sections of the agenda items in the chapters of the draft Report of the CPM for WRC-23 contained in Administrative Circular CA/251, where neither methods nor regulatory or procedural consideration are established for the topics of 9.1, because of which they could not lead to changes in the Radio Regulations (RR) in connection with topic 9.1.c.

Furthermore, the Administration of Mexico considers that the topic addressed in 9.1.c may be dealt with in ITU-R handbooks, reports, or recommendations, especially in those recommendations referring to the use of fixed wireless access systems in the frequency bands allocated to fixed services published by the ITU-R and still in force to date. Thus, on the one hand, the use of IMT can be assessed as a technological solution to implement fixed wireless broadband systems as part of the applications for fixed services, and on the other hand, the scope of topic 9.1.c is complied with in accordance with Resolution 175 (WRC-19).

Finally, the Administration of Mexico deems it is unnecessary to broaden the scope of this topic to take into consideration the identification of new frequency bands for IMT systems in the bands allocated to fixed services.

Source: United States of America

The United States is of the view that changes to the Radio Regulations are outside the scope of Agenda Item 9.1. For WRC-23 Agenda Item 9.1, Topic c), the United States has been participating in studies under Resolution **175 (WRC-19)** and looks forward to continued participation on these matters in ITU-R Study Group 5.

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DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.18

Agenda Item 1.18: to consider studies relating to spectrum needs and potential new allocations to the mobile-satellite service for future development of narrowband mobile-satellite systems, in accordance with Resolution **248 (WRC-19)**;

Background: This agenda item invited the ITU-R to consider studies relating to spectrum needs and potential new allocations to the mobile-satellite service (MSS) for the applications of low-data rate systems for the collection of data from, and management of, terrestrial devices in the MSS. The technical and operational characteristics in accordance with Resolution **248 (WRC-19)**, as well as spectrum needs, and associated sharing and compatibility studies were not developed to ensure the protection of existing services (in-band and adjacent) with potential new allocations to the MSS in the frequency bands 1695 - 1710 MHz in Region 2, 2 010 – 2 025 MHz in Region 1, 3 300 – 3 315 MHz, 3 385 – 3 400 MHz in Region 2.

For the frequency bands under study in Region 2, in the United States all or portions of the 1 675-1 710 MHz band is allocated to Meteorological-Satellite, Meteorological Aids, and Fixed and Mobile except aeronautical mobile services on a primary basis; the 3 300-3 315 MHz band and the 3 385-3 400 MHz band are allocated to the radiolocation service, and is currently under study for advanced wireless services⁹.

Proposal:

NOC USA/1.18/1

Radio Regulations Volumes 1, 2 and 4

Reason: ITU-R studies did not demonstrate that sharing and compatibility is feasible between low-data rate, narrowband MSS applications and existing primary services. In addition, discussions on Resolution 248 have shown it is ambiguous and unclear regarding the consideration of the appropriate technical and operational characteristics that should be used in the sharing and compatibility studies. Therefore, the United States believes that no regulatory actions are necessary to Volumes 1, 2 and 4 of the Radio Regulations.

SUP USA/1.18/2

⁹ FCC Notice of Proposed Rulemaking, “Facilitating Shared Use in 3.1-3.55 GHz band.”
<https://docs.fcc.gov/public/attachments/FCC-19-130A1.pdf>

RESOLUTION 248 (WRC-19)

**Studies relating to spectrum needs and potential new allocations to the mobile satellite service in the frequency bands 1 695-1 710 MHz, 2 010-2 025 MHz, 3 300-3 315 MHz and 3 385-3 400 MHz
for future development of narrowband mobile-satellite systems**

Reason: Consequential action.
