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| A close up of a sign  Description automatically generated | **World Radiocommunication Conference (WRC-23)Dubai, 20 November - 15 December 2023** |  |
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| COMMITTEE 4 | **Revision 3 toDocument 163-E** |
|  | **24 November 2023** |
|  | **Original: English** |
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| Malawi/South Sudan (Republic of) |
| PROPOSALS FOR THE WORK OF THE CONFERENCE |
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| Agenda item 1.2 |

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)**;

# 1 Background

This input contribution is submitted under WRC‑23 agenda item (AI) 1.2 in relation to Band 4 (6 425-7 025 MHz (Region 1)) and Band 5 (7 025-7 125 MHz (globally)). Firstly, it is to support essential satellite services across various user groups. This includes government agencies for national border control, emergency and disaster communications, and aeronautical and maritime safety-related services critical for operations. The bands consist of unplanned fixed-satellite services (FSS), allocated on a co-primary basis and a planned band under Appendix **30B** to the Radio Regulations (RR AP**30B**), providing developing countries with equitable access to the geostationary orbit. In addition, these frequency bands are already allocated to the mobile service on a primary basis. Several administrations have made the frequency band 5 925-7 125 MHz or portions of it available for unlicensed use, such as wireless access systems and radio local area networks (WAS/RLAN), where sharing the frequency bands with incumbent services, such as FSS, is feasible by allowing appropriate regulatory and technical conditions.

Therefore, it is recognized that the current provisions of the frequency band 6 425-7 125 MHz in the RR provide proper conditions for existing services to share the frequency bands, including between WAS/RLAN and FSS.

Although it is understood that IMT identification in the RR has the benefit of promoting economies of scale, the compelling situation in this frequency band is based on shared usage by FSS, fixed service (FS) and WAS/RLAN. On this basis, the current provisions in the RRs are the most appropriate to meet the needs of administrations and the industry and provide flexibility to each administration to deploy a range of technologies. In this regard, “No Change” is the right approach at the WRC-23 in this frequency band.

The co-signing administrations will continue to utilize existing services, such as C-Band FSS, WAS/RLAN, etc., as a vital component of their national telecommunication infrastructure well into the future. For satellite use, the C-Band has unique characteristics, including resistance to rain fade and wide reach, which make it ideal for the African continent, given the impact of climate change with the increased number of storms and floods that damage African communities annually. The characteristics of the C-Band have also led to the use of this band for feeder uplinks for MSS systems, including those providing safety-related services. Ships and aircraft operating throughout the world rely on the availability of Band 4 for feeder links. Furthermore, unlicensed use, such as WAS/RLAN in this frequency band, would facilitate bridging the digital divide, particularly with a significant percentage of their population living in rural areas and also meet the increasing traffic demands.

These administrations, in formulating their position, have taken into consideration several factors, including;

1) The results of the studies, conducted by the ITU-R (Report ITU-R S.2367) and contained in ECC Report 302 during the previous study cycles indicated that co-frequency sharing between IMT and FSS and IMT and RLANs (Wi-Fi) is neither feasible nor practical in the in-band from 5 925 MHz to 6 425 MHz, and this would be equally applicable to the frequency band 6 425-7 125 MHz upper 6 GHz.

2) The findings from the studies conducted during this cycle, as per the CPM Report, have used varying assumptions on the parameters and have resulted in findings that, in many cases, indicate harmful interference to satellite receivers. Severe (and likely impractical) constraints on IMT would be required to protect FSS (Earth-to-space) adequately.

3) Furthermore, the findings from a recently conducted survey of 30 member states of the African Telecommunication Unions (ATU) on the current use of the frequency band 6 425-7 125 MHz indicated that the band is widely used within Africa for fixed and fixed satellite services, which are vital and exceptionally crucial components of the telecommunication infrastructure for many African nations today and for the future. The 6 GHz and 7 GHz frequency bands are essential for long-haul microwave links.

4) There is an intense desire from co-signing Administrations and other Administrations to preserve the sanctity of RR AP**30B** for the use of national satellite programs and to bridge the digital divide. The use of Band 4 for IMT would not be compatible with FSS use in accordance with RR AP**30B**.

5) That there is an intense desire from co-signing administrations and other administrations to preserve the provisioning of existing safety services utilizing both C and L-Bands for national emergencies /disasters, maritime and aeronautical services in compliance with IMO and ICAO requirements, as well as for National and Regional Rescue Coordination operations particularly serving the African coastline.

6) The need for flexibility in the use of this spectrum by existing multiple stakeholders and to find alternative options/bands for IMT without impacting the existing 6 GHz ecosystem by examining current usage, re-farming, and possible deployment of IMT in the medium to long term.

7) In the 6 GHz band, providing satisfactory indoor coverage from outdoor IMT base stations is not technically or economically feasible. Building entry loss can exceed 50 dB, resulting in unpredictable indoor signal quality and increased power consumption.

8) There is a strong demand from the Wi-Fi industry for using a license-exempt band of 1 200 MHz of contiguous bandwidth from 5 925 to 7 125 MHz to support the next generation of internet applications. These applications, such as AR/VAR for education, health, e-government and AI, are bandwidth-hungry.

9) ITU-R is working to revise Recommendation ITU-R M.1801-2 “Radio interface standards for broadband wireless access systems, including mobile and nomadic applications, in the mobile service”. This Recommendation includes multiple access technologies that may be used to provide broadband wireless access systems under the mobile service in the upper 6 GHz band.

10) The co-signing administrations aim to maximize the social and economic benefits of utilizing this 6 GHz spectrum band as a matter of national and regional policy.

11) Recommendation **34 (Rev.WRC-12)** “Principles for the allocation of frequency bands” includes the following:

 *“recommends that future world radiocommunication conferences*

 *1 should, wherever possible, allocate frequency bands to the most broadly defined services with a view to providing the maximum flexibility to administrations in spectrum use, taking into account safety, technical, operational, economic and other relevant factors;”*

The co-signing administrations support Methods 4A and 5A with no change to the allocations in the frequency band 6 425-7 125 MHz.

# 2 Proposals

The following proposals would implement no change as described above.

ARTICLE 5

Frequency allocations

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

NOC MWI/SSD/163/1

5 570-6 700 MHz

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| 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 |

**Reasons:** Extensive technical studies have shown that IMT networks cannot coexist with important incumbent services in the frequency band 6 425-7 125 GHz. Limited deployment of IMT networks can be managed as a national matter under the existing mobile allocation. Wider IMT harmonization in the frequency band 6 425-7 125 GHz is not feasible due to coexistence issues and decisions by several administrations not to use this spectrum for IMT network deployments. More importantly, IMT implementations would lack the economies of scale necessary for a robust equipment ecosystem or commercial viability.
Technical, operational, and regulatory solutions already adopted by several countries to ensure Wi‑Fi coexistence with ongoing, incumbent operations in the frequency band 6 425-7 125 GHz are also facilitating regulatory harmonization. This creates economies of scale and a robust ecosystem, benefitting businesses, consumers, and economies.

NOC MWI/SSD/163/2

6 700-7 250 MHz

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| 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 |

**Reasons:** Extensive technical studies have shown that IMT networks cannot coexist with critical incumbent services in the frequency band 6 425-7 125 GHz. Limited deployment of IMT networks can be managed as a national matter under the existing mobile allocation. Wider IMT harmonization in the frequency band 6 425-7 125 GHz is not feasible due to coexistence issues and decisions by several administrations not to use this spectrum for IMT network deployments. More importantly, IMT implementations would lack the economies of scale necessary for a robust equipment ecosystem or commercial viability.
Technical, operational, and regulatory solutions already adopted by several countries to ensure Wi‑Fi coexistence with ongoing, incumbent operations in the frequency band 6 425-7 125 GHz are also facilitating regulatory harmonization. This creates economies of scale and a robust ecosystem, benefitting businesses, consumers, and economies.

NOC MWI/SSD/163/3

6 700-7 250 MHz

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| Allocation to services |
| Region 1 | Region 2 | Region 3 |
| 7 075-7 145 FIXED MOBILE 5.458 5.459 |

**Reasons:** Extensive technical studies have shown that IMT networks cannot coexist with important incumbent services in the frequency band 6 425-7 125 GHz. Limited deployment of IMT networks can be managed as a national matter under the existing mobile allocation. Wider IMT harmonization in the frequency band 6 425-7 125 GHz is not feasible due to coexistence issues and decisions by several administrations not to use this spectrum for IMT network deployments. More importantly, IMT implementations would lack the economies of scale necessary for a robust equipment ecosystem or commercial viability.
Technical, operational, and regulatory solutions already adopted by several countries to ensure Wi‑Fi coexistence with ongoing, incumbent operations in the frequency band 6 425-7 125 GHz also facilitate regulatory harmonization. This creates economies of scale and a robust ecosystem, benefitting businesses, consumers, and economies.

SUP MWI/SSD/163/4

RESOLUTION 245 (WRC‑19)

Studies on frequency-related matters for the terrestrial component of International Mobile Telecommunications identification in 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

**Reasons:** Consequential studies under this Resolution have been completed.

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