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| **41 MEETING OF PERMANENT**  **CONSULTATIVE COMMITTEE II:**  **RADIOCOMMUNICATIONS**  **May 22 to 26, 2023**  **Mexico City, Mexico** | | **OEA/Ser.L/XVII.4.2.41**  **CCP.II-RADIO /doc. /23**  **01 May 2023**  **Original: English** | |
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|  | **PROPOSALS FOR THE WORK OF THE CONFERENCE**  **AGENDA ITEM 9.1 Topic B** | |  |
|  | **(Item on the Agenda: 3.1 (SGT-3))** | |  |
|  | **(Document submitted by the administration of the United States of America)** | |  |

**Impact on the sector:**

This document supports the work of CITEL’s PCC.II Working Group for WRC under 3.1 of the agenda.

**Executive Summary:**

Based on sharing and compatibility studies with existing systems of incumbent services, existing space research service operations in the frequency band 14.8-15.35 GHz, the United States supports a proposal under WRC-23 agenda item 1.13 that upgrades the space research service (space-to-space) from secondary to primary on the condition that the primary space research service stations shall not claim protection from fixed and mobile service stations in the band and retaining other uses of the SRS allocation (space-to-Earth and Earth-to-space) in a secondary allocation status.

**UNITED STATES OF AMERICA**

**PROPOSALS FOR THE WORK OF THE CONFERENCE**

Agenda item 1.13

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|  |

1.13 to consider a possible upgrade of the allocation of the frequency band 14.8-15.35 GHz to the space research service, in accordance with Resolution **661 (WRC‑19)**;

**BACKGROUND INFORMATION**

Resolution **661** **(WRC-19)** invites WRC-23 to examine on the basis of the results of studies by the ITU-R, the possibility of upgrading the secondary status of the allocation to the SRS to primary status in the frequency band 14.8-15.35 GHz.

The frequency band 14.8-15.35 GHz is currently allocated on a primary basis to the fixed and mobile services, and on a secondary basis to the space research service (SRS). Within the SRS, the band is expected to enable high-speed science data return from space science missions to a limited number of earth stations located globally. The purpose of this agenda item is to explore the feasibility of establishing a regulatory framework to provide for the operation of SRS systems in this frequency band on a primary basis, consistent with not causing harmful interference to nor constraining the operation of systems operating in other primary services in the frequency band. Additionally, the band is also currently used in two capacities by Data Relay Satellite (DRS) systems operated by multiple administrations. These uses include forward feeder uplinks from DRS earth stations to relay satellites in GSO orbit, as well as inter-satellite return links to relay data from non-GSO space science spacecraft (including crewed space vehicles and stations) through DRS satellites to the Earth.

Based on the results of ITU-R studies, cases of harmful interference to incumbent fixed and mobile (including aeronautical mobile) services were found for SRS (space-to-Earth) and SRS (Earth-to-space) operations using worst-case scenarios. For SRS (space-to-space) operation, some studies showed compatibility with incumbent in-band terrestrial services. For transmission from incumbent services into SRS, it was shown there would be an impact. For adjacent band scenarios, compatibility of SRS and RAS operations was not established by studies but may be achieved through implementation of techniques on OoB suppression.

**PROPOSAL**

Based on sharing and compatibility studies with existing systems of incumbent services, existing space research service operations in the frequency band 14.8-15.35 GHz, the United States supports upgrading the space research service (space-to-space) from secondary to primary on the condition that the primary space research service stations shall not claim protection from fixed and mobile service stations in the band and retaining other uses of the SRS allocation (space-to-Earth and Earth-to-space) in a secondary allocation status at WRC-23 under Agenda Item 1.13.

ARTICLE 5

Frequency allocations

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

MOD USA/4226A13/1

14.5-15.4 GHz

|  |  |  |  |
| --- | --- | --- | --- |
| Allocation to services | | | |
| Region 1 | Region 2 | Region 3 | |
| 14.5-14.75 FIXED  FIXED-SATELLITE (Earth-to-space) 5.509B 5.509C 5.509D 5.509E 5.509F 5.510  MOBILE  Space research 5.509G | | | |
| 14.**7**5-14.8  FIXED  FIXED-SATELLITE (Earth-to-space) 5.510  MOBILE  Space research 5.509G | | | 14.**7**5-14.8  FIXED  FIXED-SATELLITE (Earth-to-space) 5.509B 5.509C 5.509D 5.509E 5.509F 5.510  MOBILE  Space research 5.509G |
| 14.8-15.35 FIXED  MOBILE  Space research (space-to-Earth) (Earth-to-space)  SPACE RESEARCH (space-to-space) ADD 5.A113  5.339 | | | |
| 15.35-15.4 EARTH EXPLORATION-SATELLITE (passive)  RADIO ASTRONOMY  SPACE RESEARCH (passive)  5.340 5.511 | | | |

ADD USA/4226A13/2

5.A113 Stations in space research service (space-to-space) operating on a primary basis in the frequency band 14.8-15.35 GHz shall not claim protection from stations in the fixed and mobile services. No. **5.43A** does not apply.     (WRC‑23)

**Reasons:** To upgrade the existing space research (space-to-space) from secondary allocation to primary in the frequency band 14.8‑15.35 GHz on the condition that SRS (space-to-space) shall not claim protection from the FS and MS and No. **5.43A** not applying.

ARTICLE 21

Terrestrial and space services sharing frequency bands above 1 GHz

Section V − Limits of power flux-density from space stations

MOD USA/4226A13/3

TABLE **21-4**  (*continued*)     (Rev.WRC‑23)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Frequency band | Service\* | Limit in dB(W/m2) for angles of arrival (δ) above the horizontal plane | | | | Reference bandwidth |
| 0°-5° | 5°-25° | | 25°-90° |
| … | … | … | … | | … | … |
| 11.7-12.5 GHz (Region 1)  12.5-12.75 GHz (Region 1 countries listed in Nos. 5.494 and 5.496)  11.7-12.7 GHz (Region 2)  11.7-12.75 GHz (Region 3) | Fixed-satellite (space-to-Earth)  (non-geostationary-satellite orbit) 25 | −124 | −124 + 0.5(δ − 5) | | −114 | 1 MHz |
| 12.2-12.75 GHz 7 (Region 3)  12.5‑12.75 GHz 7 (Region 1 countries listed in Nos. 5.494 and 5.496) | Fixed-satellite (space-to-Earth) (geostationary-satellite orbit) | −148 | −148 + 0.5(δ − 5) | | −138 | 4 kHz |
| 13.4-13.65 GHz (Region 1) | Fixed-satellite (space-to-Earth) (geostationary-satellite orbit) | **0°-25°** | **25°-80°** | **80°-84°** | **84°-90°** | 4 kHz |
| −159 +  0.4δ 19 | −149 19 | −149 −  0.5(δ − 80) 19 | −151 19 |
| 14.8-15.35 GHz | Space research (space-to-space) | **0°-5°** | **5°-25°** | | **25°-90°** | 1 MHz |
| -124 | −124 **+** 0.5(δ − 5) | | −114 |
| 17.7-19.3 GHz 7, 8 | Fixed-satellite  (space-to-Earth)  Meteorological-satellite  (space-to-Earth) | **0°-5°** | **5°-25°** | | **25°-90°** | 1 MHz |
| −115 14, 15  or  −115 − *X* 13 | −115 + 0.5(δ − 5) 14, 15  or  −115 − *X* + ((10 + *X* )/20)  (δ − 5) 13 | | −105 14, 15  or  −105 13 |
| 17.7-19.3 GHz 7, 8 | Fixed-satellite (space-to-Earth) | **0°-3°** | **3°-12°** | **12°-25°** | −105 16 | 1 MHz |
| −120 16 | −120 +  (8/9) (δ − 3) 16 | −112 + (7/13) (δ − 12) 16 |
| … | … | … | … | … | … | … |

**Reasons:** The power flux density limits proposed to be added in Table 21-4 for the space research service (s-s) will provide the required protection levels to the fixed and mobile services, including LMS and AMSSUP USA/4226A13/4

RESOLUTION 661 **(**WRC‑19**)**

Examination of a possible upgrade to primary status of the secondary allocation to the space research service in the frequency band 14.8‑15.35 GHz

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

**Reasons:** This Resolution is no longer necessary.