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| **38 MEETING OF PERMANENT**  **CONSULTATIVE COMMITTEE II:**  **RADIOCOMMUNICATIONS**  **November 8 to 12, 2021**  ***Virtual, Mexico*** | | **OEA/Ser.L/XVII.4.2.38**  **CCP.II-RADIO /doc. /21**  **22 October 2021**  **Original: English** | |
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|  | **PRELIMINARY VIEWS FOR WRC-23**  **AGENDA ITEM 1.17** | |  |
|  | **(Item on the Agenda: 3.1)** | |  |
|  | **(Document submitted by delegation 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:**

This document contains an attachment for the USA preliminary view on WRC-23 Agenda Item 1.17 for consideration in CITEL´s preparation for WRC-23.

**UNITED STATES OF AMERICA**

**DRAFT PRELIMINARY VIEWS ON WRC-23**

**AGENDA ITEM 1.17**: to determine and carry out, on the basis of the ITU-R studies in accordance with Resolution **773 (WRC-19)**, the appropriate regulatory actions for the provision of inter-satellite links in specific frequency bands, or portions thereof, by adding an inter-satellite service allocation where appropriate.

**BACKGROUND:** WRC-23 is considering taking appropriate regulatory actions for the provision of satellite-to-satellite links, including new ISS allocations, as appropriate in the frequency ranges 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz to facilitate relaying data from non-geostationary (non-GSO) space stations through satellite networks in the fixed-satellite service.

The 11.7-12.7 GHz frequency range is allocated to the fixed, mobile, broadcasting, broadcasting-satellite, and fixed-satellite services on a primary basis. The 18.1-18.6 GHz, 18.8-19.7 GHz, and 27.5-29.5 GHz frequency ranges are allocated to the fixed, mobile, and fixed-satellite services on a primary basis, with particular Radio Regulation provisions for non-GSO mobile-satellite service feeder links in the 19.3-19.7 GHz and 29.1-29.5 MHz frequency bands. The 19.7-20.2 GHz and 29.5-30 GHz frequency bands are allocated to the fixed-satellite and mobile-satellite services on a primary basis. There is an adjacent band primary allocation to the Earth-exploration satellite service (passive) in 18.6-18.8 GHz. Studies will need to be conducted on the technical and operational characteristics, spectrum needs, and protection, sharing and potential compatibility between satellite-to-satellite links and the allocated primary services in the frequency ranges and adjacent bands specified in Resolution **773 (WRC-19)**. These studies are underway in the ITU.

**DISCUSSION:** Space station operations in low-Earth orbit are increasing at a rapid rate for scientific, academic, and commercial purposes. These stations vary in size from as large as the International Space Station to as small as single unit cubesats[[1]](#footnote-1) and have wide ranging data requirements. Users of these systems require moving data from space to Earth, or other satellite terminal locations in an efficient, fast, and cost-effective manner.

In light of the above, satellite manufacturers are developing technologies addressing this need, including the possible use of satellite-to-satellite links with transmissions limited to the same direction of transmission (e.g., Earth-to-space or space-to-Earth) of the GSO or non-GSO FSS service providers’ space station.

Consequently, there is a need for developing technical and operational characteristics that could allow for different types of space stations that plan to provide satellite-to-satellite transmissions in the referenced frequency bands. The technical and operational characteristics, including spectrum requirements, off-axis equivalent isotropically radiated power (e.i.r.p.) values and out-of-band emission limits for transmissions between space stations will also need to be studied. Any approach taken must ensure the protection of services to which the referenced frequency bands are allocated on a primary basis, without imposing regulatory or technical constraints on those services.

**U.S. VIEW:** The United States supports studies called for under Resolution **773 (WRC-19)**, including assessing the spectrum requirements, development of technical and operational characteristics, conducting sharing and compatibility with a view to ensuring the protection of, and without imposing additional regulatory or technical constraints on primary allocated services in these bands and adjacent frequency bands, including passive services. The United States is also of the view that the studies of satellite-to-satellite operations for consideration under this agenda item should be limited to links operating in the same direction of transmission as provided in the current allocations for the fixed-satellite service in the frequency bands under consideration. Based on the results of these studies, the United States supports the consideration of appropriate technical and regulatory provisions at WRC-23 to address Resolution **773 (WRC-19)** in the frequency bands 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz, or portions thereof.

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1. A single unit cubesat has the dimensions of 10x10x10 centimeters and typical mass less than 2 kilograms. [↑](#footnote-ref-1)