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|  | **Preliminary view for wrc-27 agenda item 1.18** | |  |
|  | **(Item on the Agenda: 3.1)** | |  |
|  | **(Document submitted by the Delegation of the United States)** | |  |

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**UNITED STATES OF AMERICA**

**DRAFT PRELIMINARY VIEWS ON WRC-27**

**AGENDA ITEM 1.18**: *to consider, based on the results of ITU Radiocommunication Sector studies, possible regulatory measures regarding the protection of the Earth exploration-satellite service (passive) and the radio astronomy service in certain frequency bands above 76 GHz from unwanted emissions of active services, in accordance with Resolution* ***712 (WRC-23)****;*

**BACKGROUND**:

The Earth exploration satellite service (EESS) (passive) and radio astronomy service (RAS) are highly susceptible to unwanted emissions from active radio services operating in adjacent frequency bands. The current regulatory provisions and procedures may require review to ensure protection of the EESS (passive) and the RAS in certain frequency bands above 76 GHz from unwanted emissions of certain active services.

The WRC-2000 made various allocation changes to the frequency bands above 71 GHz, including primary allocations to the Earth exploration-satellite service (EESS) (passive) subject to No. **5.340**, based on the requirements known at the time of that conference. Primary allocations have also been made to various active services in frequency bands adjacent to frequency bands above 86 GHz allocated to the EESS (passive) subject to No. 5.340. While some active systems are under development, in many of the bands above 76 GHz the planned use is still in a nascent state.

Primary service allocations have been made in adjacent frequency bands to the radio astronomy service (RAS) and various space services, such as the fixed-satellite service (FSS), mobile-satellite service (MSS), broadcasting-satellite service (BSS), and radionavigation-satellite service (RNSS), in frequency bands above 76 GHz. Because the frequencies used by EESS (passive) sensors and stations of the RAS are chosen to study natural phenomena producing radio emissions at frequencies fixed by the laws of nature, it is not possible for EESS (passive) or RAS stations to shift frequencies to avoid or mitigate interference problems.

Resolution **750 (Rev. WRC-19)** deals with the compatibility between EESS (passive) and some active services and already contains unwanted emission limits applied to the active services to ensure protection of the EESS (passive) . Resolution **739 (Rev. WRC-19)** applies under No. **5.208B** and addresses the compatibility between the radio astronomy service and the active space services in certain adjacent and nearby frequency bands.

Resolution **712 (WRC-23)** calls for compatibility studies between the EESS (passive) and corresponding active services listed in Table 1 below, and between the RAS and the active satellite services in the adjacent bands listed in Table 2 below (with a view to setting the relevant threshold levels for unwanted emissions from any GSO and non-GSO space stations and revising and updating Resolution **739 (Rev.WRC-19**) accordingly).

TABLE 1

**EESS (passive) frequency bands to be studied and corresponding active services to be included**

|  |  |  |
| --- | --- | --- |
| **EESS (passive) frequency band** | **Active service frequency band** | **Active service** |
| 86-92 GHz | 81-86 GHz | Fixed-satellite service (FSS) (Earth-to-space), mobile service (MS) |
| 92-94 GHz | MS, radiolocation service (RLS) |
| 114.25-116 GHz | 111.8-114.25 GHz | Fixed service (FS), MS |
| 164-167 GHz | 158.5-164 GHz | FS, FSS (space-to-Earth), MS, mobile-satellite service (MSS) (space-to-Earth) |
| 167-174.5 GHz | FS, FSS (space-to-Earth), inter-satellite service (ISS), MS |
| 200-209 GHz | 191.8-200 GHz | FS, ISS, MS, MSS, radionavigation service (RNS), radionavigation-satellite service (RNSS) |
| 209-217 GHz | FS, FSS (Earth-to-space), MS |

TABLE 2

**RAS frequency bands to be studied and corresponding active services to be included**

|  |  |  |
| --- | --- | --- |
| **Radio astronomy frequency band** | **Active satellite service frequency band** | **Active satellite service (space-to-Earth)** |
| 76-81 GHz | 71-76 GHz | Fixed-satellite service (FSS), mobile-satellite service (MSS), broadcasting-satellite service (BSS) |
| 130-134 GHz | 123-130 GHz | FSS, MSS, radionavigation-satellite service (RNSS) |
| 164-167 GHz | 167-174.5 GHz | FSS |
| 226-231.5 GHz | 232-235 GHz | FSS |

Resolution **712 (WRC-23)** also invited WRC-27 to determine, based on study results, any regulatory measures regarding the protection of the EESS (passive) in the frequency bands listed in Table 1 above from unwanted emissions of active services and update Resolution **750 (Rev.WRC-19)** accordingly, and to determine, based on the results of studies, any required regulatory measures regarding the protection of the RAS in the frequency bands listed in Table 2 above and update Resolution **739 (Rev.WRC-19)** accordingly.

**U.S. VIEW**:

The United States supports conducting the compatibility studies, based on available characteristics of the active services, called for in Resolution **712 (WRC-23)**, between the EESS (passive) and the corresponding active services in adjacent frequency bands as listed in Table 1. Further, the United States supports conducting the compatibility studies between the RAS and the active satellite services in frequency bands listed in Table 2.

The U.S. also supports, based on ITU-R study results, potential development of regulatory measures to ensure compatibility of the EESS (passive) / RAS without overly burdening the current and future use of active services in the studied frequency bands.