|  |
| --- |
| U.S. Radiocommunication SectorFact Sheet |
| **Working Party:** ITU-R WP 7C | **Document No:** US 7C/27-006NC |
| **Ref.:** xxxxxxxx/ COM6/24 (WRC-23) | **Date:** 8 August 2024 |
| **Document Title:** Proposed draft reply liaison statement to Working Party 4A on WRC-27 agenda item 1.4 |
| **Author(s)/Contributors(s):**Daniel BishopNASAJason SzklanyADS for NASA | Phone: Email: Daniel.W.Bishop@nasa.govPhone: Email:  jszklany@asrcfederal.com |
| **Purpose/Objective:** To provide relevant technical information from WP 7C to WP 4A regarding WRC-27 agenda item 1.4. |
| **Abstract:** Working Party (WP) 7C is listed as a contributing group for WRC-27 agenda item 1.4 which will consider possible new primary allocations to the fixed-satellite service (space-to-Earth) in the frequency band 17.3-17.7 GHz, and to the broadcasting satellite service (space-to-Earth) in the frequency band 17.3-17.8 GHz in Region 3. Additionally, it will consider equivalent power flux-density limits to be applied to Regions 1 and 3, to non-geostationary-satellite and fixed-satellite systems, in the frequency band 17.3-17.7 GHz.This draft liaison statement will serve to collect relevant characteristics to be included in their studies.  |
| **Fact Sheet Preparer:** Jason Szklany, ADS for NASA |

|  |  |
| --- | --- |
| **Radiocommunication Study Groups** |  |
|  |  |
|  |  |
| Source: Document xxxxxxxxSubject: WRC-27 agenda item 1.4 | **Document XX/-E** |
| **15 May 2024** |
| **Original: English** |
| United States of America |
| proposed reply liaison statement to working party 4a regarding WRC-27 agenda item 1.4WRC-27 Agenda Item 1.4 calls for the consideration of a possible new primary allocation to the fixed-satellite service (space-to-Earth) in the 17.3-17.7 GHz frequency band and a possible new primary allocation to the broadcasting-satellite service (space-to-Earth) in the 17.3-17.8 GHz in Region 3, while ensuring the protection of existing primary allocations in the same and adjacent frequency bands. Additionally, WRC-27 agenda item 1.4 calls for the consideration equivalent power flux-density limits to be applied in Regions 1 and 3 to non-geostationary-satellite systems in the fixed-satellite service (space-to-Earth) in the frequency band 17.3-17.7 GHz.In document 7C/54, Working Party 4A requested technical characteristics to support these studies from contributing groups relevant to the 17.3-17.7 GHz frequency band for FSS (space-to-Earth) and 17.3-17.8 GHz for the BSS (space-to-Earth). This document proposes a draft reply liaison statement to Working Party 4A that contains relevant technical characteristics for studies. |

Attachment: 1.

Attachment

Working Party 7C

proposed reply liaison statement to working party 4a regarding WRC-27 agenda item 1.4

|  |
| --- |
|  |

Working Party (WP) 7C thanks WP 4A for its liaison statement in Document [7C/54](https://www.itu.int/md/R23-WP7C-C-0054/en) seeking relevant technical information to support studies under WRC-27 agenda item 1.4. In the frequency ranges identified for study under WRC-27 agenda item 1.4, as provided in the liaison statement, an allocation to Earth exploration-satellite service (EESS) (active) is allocated on a primary basis in the following frequency band:

• 17.2-17.3 GHz;

The typical technical and operational characteristics for Synthetic Aperture Radars (SAR) systems in this frequency band can be found in Table 16 of Recommendation [ITU-R RS.2105](https://www.itu.int/rec/R-REC-RS.2105/en)-2 and are identified in Table 1 below*.*

TABLE 1

Characteristics of EESS (active) missions in the 17.2-17.3 GHz band

| **Parameter** | **SAR-H1** |
| --- | --- |
| Sensor type | SAR |
| Type of orbit | Circular SSO |
| Altitude (km) | 512 |
| Inclination (degrees) | 97.9 |
| Ascending node LST | 06:00 |
| Repeat period (days) | 5 |
| Antenna type | Offset linear array fed reflector |
| Number of beams | 1 |
| Antenna (Transmit and Receive) peak gain (dBi) | 49 |

| Polarization | Linear VV, VH |
| --- | --- |
| Azimuth scan rate (rpm) | 0 |
| Antenna beam look angle (degrees) | 30-40 |
| Antenna beam azimuth angle (degrees) | 90 |
| Antenna elev. beamwidth (degrees) | 0.9 |
| Antenna az. beamwidth (degrees) | 0.3 |
| RF centre frequency (MHz) | 17 250 |
| RF bandwidth (MHz) | 10 |
| Transmit Pk pwr (W) | 4 000 |
| Transmit Ave. pwr (W) | 360 |
| Pulsewidth (μs) | 20-30 |
| Pulse repetition frequency (PRF) (μs) | 1 000-3 000 |
| Chirp rate (MHz/μs) | 0.5-0.67 |
| Transmit duty cycle (%) | 2-9 |
| System noise figure (dB) | 5 |

The relevant interference protection criteria for the SAR systems operating in this frequency band is located in Recommendation [ITU-R RS.1166](https://www.itu.int/rec/R-REC-RS.1166/en)-5, which is summarized in Table 2.

TABLE 2

Protection criteria of EESS (active) missions

|  |  |  |
| --- | --- | --- |
| Sensor type | Interference criteria | Data availability criteria(%) |
| Performance degradation | *I*/*N*(dB) | Systematic | Random |
| Synthetic aperture radar | 10% degradation of standard deviation of pixel power | –6 | 99 | 95 |

Working Party 7C appreciates being kept informed of the status of all studies regarding EESS (active) systems under this agenda item.

|  |
| --- |
| **Status:**  For information and action, if any  |
| **Contacts:** xxxxxxx xxxxxxx Xxxxxxx xxxxxxx | **E-mail:** xxxxxxxxxxx**E-mail**: xxxxxxxxxxx  |