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| **42 MEETING OF PERMANENT**  **CONSULTATIVE COMMITTEE II:**  **RADIOCOMMUNICATIONS**  **August 28 to September 01, 2023**  **Ottawa, Canada** | | **OEA/Ser.L/XVII.4.2.42**  **CCP.II-RADIO /doc. 5898/23**  **06 August 2023**  **Original: English** | |
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|  | **PROPOSALS FOR THE WORK OF THE CONFERENCE AGENDA ITEM 10 - 51.4-52.4 GHZ FSS** | |  |
|  | **(Item on the Agenda: 3.1 (SGT-5))** | |  |
|  | **(Document submitted by the delegation of the United States of America)** | |  |

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| **Impact on the sector:** |
| This document supports the work of CITEL’s PCC.II Working Group for WRC under 3.1 of the agenda. |

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| **Executive Summary:** |
| This contribution is a preliminary proposal in relation to WRC-23 agenda item 10. The United States proposes studies towards supporting the use of the 51.4-52.4 GHz fixed-satellite service (Earth-to-space) frequency band for gateway earth stations operating with non-geostationary-satellite orbit FSS systems. |

**UNITED STATES OF AMERICA**

**PROPOSALS FOR THE WORK OF THE CONFERENCE**

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**Agenda item 10**

**Spectrum allocation and associated regulatory provisions to support use of the 51.4-52.4 GHz fixed-satellite service (Earth-to-space) frequency band for gateway earth stations operating with non-geostationary-satellite orbit FSS systems**

10to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention,

**Background:**

Today, non-geostationary orbit (non-GSO) satellite systems provide a wide range of broadband services in the fixed-satellite service (FSS) to a rapidly growing customer base, with more systems to come. Advances in satellite technologies are allowing a variety of new services including innovative broadband, video and mobile services covering all corners of the globe and providing service to places and regions not covered by traditional terrestrial services and that, accordingly, are missing out on the benefits of new and innovative telecommunications services. In addition to adding broadband connectivity, non-GSO FSS systems also support a number of important public interest initiatives including tele-health, tele-education and public protection and disaster relief.

The technological progress in radio communication enables the satellite industry to offer much more capacity today with much less spectrum. This applies to the fixed-satellite service whether operating in the geostationary or non-geostationary orbits. The satellite industry takes this development into account by using the most spectrum efficient technologies, including advances in spot-beam technologies and frequency re-use. In addition, for some satellite applications, such as gateways, sharing with other radiocommunication services could be more easily accomplished. However, even with this efficiency, demand for fixed-satellite service outpaces the spectrum available for this service today.

There is growing demand for fixed-satellite service, including broadband and data services which in many rural and remote locations are the only ways of receiving these important communication services. Therefore, non-gSO satellite operators are seeking access to additional FSS spectrum to satisfy requirements for existing and new services, including broadband services.

The need for additional FSS spectrum in the 50 GHz range for non-GSO FSS gateway uplinks was established in response to agenda item 9.1.9 for WRC-19 in Report ITU-R S.2461. These studies included the need for spectrum for both non-GSO and GSO FSS networks. The spectrum needs for GSO were successfully addressed by adopting an allocation at WRC-19 to GSO use of the frequency band 51.4-52.4 GHz. This proposal considers expanding the use of the FSS (Earth-to-space) frequency band 51.4-52.4 GHz to address the spectrum needs of non-GSO FSS networks in accordance with the spectrum needs identified in Report ITU-R S.2461. Other services, including GSO FSS gateway uplinks, will be taken into account in the studies, and the analysis will consider the possibility of sharing with existing uses of the band.

**Proposals**

SUP USA/10 (51.4-52.4 GHz NGSO FSS)/1

RESOLUTION 812 (WRC-19)

Preliminary agenda for the 2027 World Radiocommunication Conference

**Reasons:** This Resolution must be suppressed, as WRC-23 will create a new Resolution that will include the agenda for WRC-27.

ADD USA/10 (51.4-52.4 GHz NGSO FSS)/2

RESOLUTION [A10] (WRC-23)

Agenda for the 2027 World Radiocommunication Conference

The World Radiocommunication Conference (Dubai, 2023),

considering

*a)* that, in accordance with No. 118 of the ITU Convention, the general scope of the agenda for a world radiocommunication conference (WRC) should be established four to six years in advance and that a final agenda shall be established by the ITU Council two years before the conference;

*b)* Article 13 of the ITU Constitution relating to the competence and scheduling of WRCs and Article 7 of the Convention relating to their agendas;

*c)* the relevant resolutions and recommendations of previous world administrative radio conferences (WARCs) and WRCs,

recognizing

*a)* that this conference has identified a number of urgent issues requiring further examination by WRC‑27;

*b)* that, in preparing this agenda, some items proposed by administrations could not be included and have had to be deferred to future conference agendas,

resolves

to recommend to the Council that a WRC be held in 2027 for a maximum period of four weeks, with the following agenda:

1 on the basis of proposals from administrations, taking account of the results of WRC‑19 and the Report of the Conference Preparatory Meeting, and with due regard to the requirements of existing and future services in the frequency bands under consideration, to consider and take appropriate action in respect of the following items:

1.x to consider the use of the 51.4 – 52.4 GHz band by gateway earth stations transmitting to non-geostationary satellite orbit systems operating in the, fixed-satellite service (FSS) (Earth-to-space) in accordance with Resolution **[AI10\_51.4-52.4 Non-GSO FSS] (WRC‑23);**

**. . .**

invites the ITU Council

to finalize the agenda and arrange for the convening of WRC‑27, and to initiate as soon as possible the necessary consultations with Member States,

instructs the Director of the Radiocommunication Bureau

1 to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting (CPM) and to prepare a report to WRC‑27;

2 to submit a draft report on any difficulties or inconsistencies encountered in the application of the Radio Regulations referred in agenda item 9.2 to the second session of the CPM and to submit the final report at least five months before the next WRC,

instructs the Secretary-General

to communicate this Resolution to international and regional organizations concerned.

**Reasons:** To provide for studies in the 51.4-52.4 GHz frequency band for gateway earth stations of non-GSO FSS in the Earth-to-space direction on a primary basis.

ADD USA/10 (51.4-52.4 GHz NGSO FSS)/3

Resolution [AI10\_51.4-52.4 Non-GSO FSS] (WRC‑23)

Studies relating to the use of the 51.4 – 52.4 GHz band by gateway earth stations transmitting to non-geostationary FSS satellite orbit systems (Earth-to-space)

The World Radiocommunication Conference (Dubai, 2023),

considering

*a)* that satellite systems are increasingly being used to deliver broadband services and can help enable broadband access;

*b)* that next-generation FSS technologies for broadband will increase speeds, with faster rates expected in the near future;

*c)* that technological developments such as advances in spot-beam technologies and frequency reuse are used by the FSS in spectrum above 30 GHz to increase the efficient use of spectrum;

recognizing

*a)* the need to protect existing services when considering frequency bands for possible additional allocations to any service;

*b)* that the frequency band 51.4-52.4 GHz is allocated to fixed and mobile services, which will need to be protected, and is available for high-density applications in the fixed service as indicated in No. **5.547**;

*c)* that the frequency bands 50.2-50.4 GHz and 52.6-54.25 GHz are allocated to the space research service (passive), which will need to be protected as indicated in No. 5.340;

*d)* that the frequency band 50.2-50.4 GHz is also allocated to the Earth exploration satellite service (EESS) (passive) with applicable NGSO FSS unwanted emission limits provided in Resolution 750 (WRC-19);

*e)* that Resolution 750 is applied to the fixed satellite service in the frequency band 51.4-52.4 GHz and includes protections studied for GSO operation;

*f)* that the frequency band 52.6-54.25 GHz is allocated to the EESS (passive), which will need to be protected as indicated in No. 5.340 through a revision of Resolution 750 (WRC-19) to include the NGSO FSS protection for the 52.6-54.25 GHz frequency band;

*g)* that Report ITU-R S.2461includes studies on the spectrum needs for additional FSS spectrum in the Earth-to-space direction for both geostationary-satellite orbit (GSO) FSS networks and non-GSO FSS systems in the frequency band 51.4-52.4 GHz;

*h)* that WRC-19, pursuant to Resolution **162 (WRC-15),** allocated the frequency band 51.4-52.4 GHz to the FSS (Earth-to-space) on a primary basis, and also adopted No. **5.555C** which limited the use of the FSS allocation to geostationary satellite networks;

i) that the need for additional uplink spectrum in the 50 GHz range for non-GSO FSS gateway use continues,

resolves to invite ITU‑R

to conduct, and complete in time for WRC‑27:

1 sharing and compatibility studies with current and planned stations of existing primary services, , including in adjacent bands as appropriate, including protection of fixed and mobile services, to determine the suitability of revising the primary allocation to the FSS in the frequency band 51.4-52.4 GHz to enable use by gateway earth stations of non-GSO FSS systems (Earth-to-space);

2 compatibility studies between NGSO FSS (E-s) gateway stations operating in the frequency band 51.4-52.4 and the EESS (passive) and SRS (passive) operating in the frequency band 52.6-54.25 GHz;

3 studies regarding the protection of GSO FSS networks and associated gateway earth stations from the emissions of non-GSO FSS systems and associated gateways,

instructs the Director of the Radiocommunication Bureau

to report on the results of the ITU-R studies to WRC-27,

invites administrations

to participate actively in these studies by submitting contributions to ITU‑R.

**Reasons:** To conduct studies on the possibility of revising the allocation to the FSS (Earth-to-space) in the frequency band 51.4-52.4 GHz, and associated regulatory provisions, to enable use by non-GSO FSS gateway stations on a primary basis.

**ATTACHMENT**

**PROPOSAL FOR FUTURE AGENDA ITEM FOR [1.X]**

**Subject:** Proposed Future WRC Agenda Item for WRC-2027 to consider, based on the results of ITU‑R studies, revisions to the allocation to the fixed-satellite service (Earth-to-space) in the 51.4-52.4 GHz band, and associated regulatory provisions, to enable use by non-geostationary satellite orbit (non-GSO) FSS gateway earth stations with a minimum antenna diameter of 2.4 meters in accordance with Resolution **[AI10\_51.4-52.4 Non-GSO FSS] (WRC‑23).**

**Origin**: United States of America

*Proposal:* to conduct studies with a view to removing the limitation in No. **5.555C** of the Radio Regulations to geostationary-satellite orbit (GSO) FSS networks to meet established non-GSO FSS spectrum needs in accordance with Resolution **[AI10\_51.4-52.4 Non-GSO FSS] (WRC‑23).**

***Background/reason:***

To expand the availability of FSS gateway uplink spectrum in the 50 GHz range to meet documented requirements of non-GSO FSS systems.

***Radiocommunication services concerned:***

Fixed-satellite service, fixed service, mobile service, Earth exploration satellite service, radio astronomy service

***Indication of possible difficulties:***  None foreseen

***Previous/ongoing studies on the issue:*** Studies on spectrum needs for non-GSO FSS systems in this frequency range were conducted for WRC-19 and included in Report ITU-R S.2461; sharing/compatibility studies not including non-GSO FSS systems in this frequency range are included in Report ITU-R S.2463.

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| ***Studies to be carried out by:*** ITU-R Study Group 4 | *with the participation of:*  SGs 5 and 7 |

***ITU-R Study Groups concerned:*** SG 4, SG 5, and SG 7

***ITU resource implications, including financial implications (refer to CV126):*** Minimal

***Common regional proposal:*** Yes/No ***Multicountry proposal:*** Yes/No

*Number of countries:*

***Remarks***