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| **34 MEETING OF PERMANENT****CONSULTATIVE COMMITTEE II:****RADIOCOMMUNICATIONS****August 12 to 16, 2019****Ottawa, Ontario, Canada** | **OEA/Ser.L/XVII.4.2.34****CCP.II-RADIO/doc. /19****1 July 2019****Original: English** |
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|  | **PRELIMINARY PROPOSAL FOR WRC-19 ON AGENDA ITEM 10: E-band NGSO** |
|  | **(Item on the Agenda: 3.1)** |
|  | **(Document submitted by the delegation of the United States of America)** |

**Introduction**

WRC-19 agenda item 10, recommends to Council items to include in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible items for future conferences, in accordance with Article 7 of the Convention. For this agenda item, the United States offers to CITEL PCC.II the included preliminary proposal for the WRC-23 agenda to consider the development of regulatory provisions for non-geostationary fixed-satellite services satellite systems feeder links in the frequency bands 71-76 GHz (space-to-Earth and a proposed new Earth-to-space allocation) and 81-86 GHz (Earth-to-space).

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| **World Radiocommunication Conference (WRC-19)Sharm el-Sheikh, Egypt, 28 October – 22 November 2019** |  |
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| PLENARY MEETING | **Addendum 24 toDocument 5658-E** |
|  | **9 July 2019** |
|  | **Original: English** |
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| United States of America |
| Proposals for the work of the conference |
|  |
| Agenda item 10 |

10 to 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 INFORMATION:**

WRC-97 adopted No. **5.523A** whereby the use of certain frequency bands by geostationary and non- geostationary fixed satellite service networks is subject to the application of the provisions of No. **9.11A** and No. **22.2** does not apply.

This WRC action allows non-GSO satellite systems to operate in the bands referred to in No. **5.523A**

subject to coordination on a first come first served basis with respect to GSO satellite networks.

WRC-97 also adopted provisional equivalent pfd (epfd) and aggregate epfd limits to be met by NGSO satellite systems operating in certain frequency bands. WRC-2000 adopted definitive epfd limits and expanded the ranges of frequency where they would apply. A NGSO satellite system meeting the epfd limits in the relevant frequency bands is deemed to be compliant with Article **22.2** with respect to any GSO satellite network regardless of priority date.

Leading up to WRC-19, studies were performed on sharing methodologies between GSO and non-GSO in the same band, and WRC-19 will consider taking appropriate regulatory actions for non-GSO satellite systems in the 37-51.4 GHz frequency range by adopting aggregate criteria not to be exceeded by non-GSO FSS systems in order to protect GSO FSS and GSO BSS networks against interference.

High mm-wave bands are particularly suitable for use as ultra-high capacity feeder links for large constellation non-GSO FSS systems using broadband service links. In addition, these frequency bands are potentially suitable for broadband links for consumer and enterprise customers. As a result, system trials of high mm-wave bands are progressing and technology prototypes are maturing.

**PROPOSAL**:

There are currently no mechanisms in the RR establishing coordination procedures applicable between NGSO systems, nor methods of ensuring satisfactory co-existence with GSO networks, operating in the frequency bands currently allocated to the FSS in the range from 71-76 GHz (space-to-Earth) and 81-86 GHz (Earth-to-space). We propose to consider the development of regulatory provisions for non-geostationary fixed-satellite services satellite systems feeder links in the frequency bands 71-76 GHz (space-to-Earth and a proposed new Earth-to-space allocation) and 81-86 GHz (Earth-to-space).

It should be noted that several administrations are considering using these band for high-density fixed service links. These bands can play an important role in 5G development by facilitating backhaul and other fixed uses. It is important not only to protect existing links but also to provide an opportunity for future growth of fixed service in these bands as demand for backhaul and other related services increases.

ADD USA/5658A24/1

Draft New Resolution [USA-2023]

Agenda for the 2023 World Radiocommunication Conference

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

considering

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

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

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

resolves

to recommend to the Council that a world radiocommunication conference be held in 2023 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 bands under consideration, to consider and take appropriate action in respect of the following items:

1.[E-band-NGSO] to consider the development of regulatory provisions for non-geostationary fixed-satellite services satellite systems feeder links in the frequency bands 71-76 GHz (space-to-Earth and proposed new Earth-to-space) and 81-86 GHz (Earth-to-space) in accordance with Resolution [A10-E-band-NGSO-SAT] (WRC-19);

resolves further

to activate the Conference Preparatory Meeting,

invites the Council

to finalize the agenda and arrange for the convening of WRC‑23, and to initiate as soon as possible the necessary consultations with Member States,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting and to prepare a report to WRC‑23,

instructs the Secretary-General

to communicate this Resolution to international and regional organizations concerned.

**Reasons:** To fulfil the growing need for feeder links using NGSO satellite systems while preventing harmful interference to other services.

ADD USA/5658A24/2

DRAFT NEW RESOLUTION [A10-E-BAND-NGSO-SAT] (WRC-19)

**Studies of technical, operational issues and regulatory provisions for non- geostationary fixed-satellite services satellite system feeder links in the frequency bands 71- 76 GHz (space-to-Earth and proposed new Earth-to-space) and 81-86 GHz (Earth-to-space)**

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

considering

*a)* that satellite systems are increasingly being used to deliver broadband services and are part of the solutions to enable broadband access;

*b)* that next-generation fixed-satellite service (FSS) technologies are required to deliver multi-terabit speeds to support real-time demanding applications, which can be delivered by large constellation non-geostationary (non-GSO) FSS systems;

*c)* that the frequency bands above 70 GHz are particularly suitable for use as high capacity feeder links for large constellation non-GSO FSS systems;

*d)* that the particular characteristics of such high capacity feeder links for large constellation non-GSO FSS systems involve highly directional antennas on both the satellites and the Earth stations and, as such, may be conducive to frequency sharing arrangements including, but not limited to, consideration of reverse band operation in certain situations, and a consideration of whether No. **22.2** can be augmented or replaced by another sharing mechanism between GSO and non-GSO systems in some or all of the 71-76 and 81-86 GHz bands;

*e)* that non-GSO systems are at early conceptual phases, thus providing an opportunity to investigate sharing conditions in these bands;

*f)* that GSO networks are operating in these frequency bands and that some administrations are considering deploying high-density fixed service links in these bands;

*g)* that studies are required in order to ascertain the feasibility of, and conditions for, non-GSO FSS satellite systems planned to operate in the frequency bands 71-76 GHz and 81-86 GHz with other satellite networks and systems and other allocated services to ensure that these networks/systems/services are protected;

*h)* that studies are required to ascertain the feasibility, and conditions for, a possible new allocation to FSS (Earth-to-space), for reverse-band feeder links for non-GSO FSS satellite systems in the frequency band 71-76 GHz;

*i)* that the frequency bands 71-76 and 81-86 GHz are allocated to various services,

*recognizing*

*a)* that **No. 21.16** does not contain power flux-density limits applicable to FSS satellites to protect fixed and mobile services with allocations in the frequency band 71- 76 GHz;

*b)* that the frequency band 86-92 GHz is allocated on a primary basis to the EESS (passive) and space research (passive) services, which must be adequately protected;

*c)* that **No. 5.149** indicates that radio astronomy observations are carried out in the frequency band 76-86 GHz and that mitigation measures may have to be defined in this regard,

*resolves to invite ITU-R*

to conduct, and complete in time for WRC-23:

1. studies considering additional spectrum needs for development of the non-GSO satellite systems in the fixed-satellite service in the frequency bands 71-76 GHz and 81-86 GHz, the technical conditions of their use, and the possibility of optimizing the use of these frequency bands with a view to increasing spectrum efficiency;

2. studies of technical and operational issues and regulatory provisions for the operation of feeder links for non-GSO FSS satellite systems in the frequency bands 71-76 GHz (space-to-Earth, and the feasibility of a possible new allocation for reverse-band feeder operation in the Earth-to-space direction) and 81-86 GHz (Earth-to-space), including regulatory provisions in some or all of these frequency bands for non-GSO systems coordinating and sharing with GSO and other non-GSO FSS, MSS and BSS networks, systems, and specific earth stations taking into account the future growth of these uses and the need to ensure their protection;

3. sharing and compatibility studies between non-GSO FSS satellite systems feeder links in the frequency bands 71-76 GHz (space-to-Earth, and a possible new allocation for reverse-band operation in the Earth-to-space direction) and 81-86 GHz (Earth-to-space) with other existing services, including fixed and mobile services in those bands, taking into account the future growth of this use and the need to ensure the protection of these services;

4. studies of possible necessary revisions to Resolution **750 (Rev. WRC-[19])** for the protection of the EESS (passive) and space research (passive) in the frequency bands 86-92 GHz from non-GSO FSS transmission;

*further resolves*

to invite WRC-23 to consider the results of the above studies and take appropriate action,

*invites administrations*

to participate in the studies by submitting contributions to ITU-R.

SUP USA/5658A24/3

RESOLUTION 810 (WRC‑15)

Preliminary agenda for the 2023 World Radiocommunication Conference

**Reasons:** This Resolution must be suppressed, as WRC-19 will create a new Resolution that will include the agenda for WRC-23.

## ATTACHMENT

**PROPOSAL FOR FUTURE AGENDA ITEM FOR WRC-23**

**Subject:** Proposed Future WRC Agenda Item for WRC-2023 to consider the results of studies on the technical, operational issues and regulatory provisions for non-geostationary fixed-satellite services satellite systems feeder links in the frequency bands 71-76 GHz (space-to-Earth and Earth-to-space) and 81-86 GHz (Earth-to-space)**.**

**Origin**: United States of America

***Proposal:***Examine possible revision of Radio Regulation regarding non-geostationary Fixed-Satellite Service systems feeder links in the 71-76 GHz and 81-86 GHz bands.

### Background/reason:

High mm-wave bands are particularly suitable for use as ultra-high capacity feeder links for large constellation non-GSO FSS systems using broadband service links. In addition, these frequency bands are potentially suitable for broadband links for consumer and enterprise customers. As a result, system trials of high mm-wave bands are progressing and technology prototypes are maturing.

However, there are currently no mechanisms in the RR establishing coordination procedures applicable between NGSO systems, nor methods of ensuring satisfactory co-existence with GSO networks, operating in the frequency bands currently allocated to the FSS in the range from 71-76 GHz (space-to-Earth) and 81-86 GHz (Earth-to-space).

### Radiocommunication services concerned:

Earth Exploration Satellite, Space research, Radio Astronomy, Fixed, Mobile, Fixed-Satellite

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

### Previous/ongoing studies on the issue:

1. Studied in the 2015-2019 preparatory cycle leading to a Report ITU-R S.[E-band FSS characteristics] currently being developed to provide additional system characteristics of planned high mm-wave FSS network and systems; and

***Studies to be carried out by:*** ITU-R Study Group 4

*with the participation of:*

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

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

***Common regional proposal:*** TBD ***Multicountry proposal:***

*Number of countries:*

### Remarks