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| A close up of a sign  Description automatically generated | **World Radiocommunication Conference (WRC-23)Dubai, 20 November - 15 December 2023** |  |
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| PLENARY MEETING | **Document 135-E** |
|  | **30 October 2023** |
|  | **Original: English** |
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| Singapore (Republic of)/Tonga (Kingdom of) |
| PROPOSALS FOR THE WORK OF THE CONFERENCE |
|  |
| Agenda item 10 |

10to recommend to the ITU Council items for inclusion in the agenda for the next world radiocommunication conference, and items for the preliminary agenda of future conferences, in accordance with Article 7 of the ITU Convention and Resolution **804 (Rev.WRC‑19)**,

Introduction

Singapore (Republic of) and Tonga (Kingdom of) support the inclusion of the following item(s) in the agenda of WRC-27:

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

Proposals

ADD SNG/TON/135/1

RESOLUTION [SNG/TON/AI 10\_WRC‑27\_Agenda] (WRC‑23)

Agenda for the 2027 World Radiocommunication Conference

The World Radiocommunication Conference (Dubai, 2023),

…

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‑23 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 the following items and take appropriate action:

...

1.y to study relating to the use of frequency band 51.4-52.4 GHz to enable use by gateway earth stations transmitting to non-geostationary FSS satellite orbit systems (Earth-to-space), in accordance with Resolution **[SNG/TON/AI10/51.4-52.4 NGSO FSS] (WRC‑23)**;

ADD SNG/TON/135/2

DRAFT RESOLUTION [SNG/TON/AI10/51.4-52.4 NGSO FSS] (WRC‑23)

Studies relating to the use of 51.4-52.4 GHz band to enable use 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 universal broadband access;

*b)* that next-generation fixed-satellite service (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;

*d)* that fixed-satellite applications in spectrum above 30 GHz, such as feeder links, should be easier to share with other radiocommunication services than high-density fixed-satellite service (HDFSS) applications,

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, while the frequency band is not allocated to radio astronomy service, No. **5.556** indicates that radio astronomy observations are carried out in the frequency band 51.4-54.25 GHz and that appropriate measures may have to be defined to protect radio astronomy service;

*d)* that Report ITU‑R S.2461 demonstrated the need for additional FSS spectrum in the Earth-to-space direction for both geostationary-satellite orbit (GSO) FSS networks and non-GSO FSS networks in the frequency band 51.4-52.4 GHz;

*e*) that Report ITU‑R S.2462 presents sharing and compatibility studies between GSO FSS networks and non-GSO FSS systems in 50/40 GHz;

*f)* 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 limit the use of the FSS allocation to GSO networks and associated gateway earth stations with a minimum antenna diameter of 2.4 metres;

*g)* that the need for additional uplink spectrum in the 50 GHz range for non-GSO FSS gateway earth station 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, including protection of fixed and mobile services, and studies relating to the suitability of revising conditions associated to the primary allocation to the FSS in the frequency band 51.4-52.4 GHz (Earth-to-space) to enable use by gateway earth stations of non-GSO FSS networks (Earth-to-space), and the relevant regulatory studies;

2 compatibility studies between non-GSO FSS (Earth-to-space) gateway stations and systems operating in the passive 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, including possible associated regulatory actions and possible inclusion of 51.4-52.4 GHz to the scope of Resolutions **769 (WRC‑19)** and **770 (WRC‑19)**,

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:** See the following Table that has been prepared using the template given in Annex 2 to Resolution **804 (Rev.WRC-19)**.

ANNEX

Submission of proposals for agenda items

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| **Subject:** Use of the frequency band 51.4 - 52.4 GHz by gateway earth stations transmitting to non-geostationary satellite orbit (non-GSO) systems operating in the FSS (Earth-to-space) |
| **Origin:** Singapore (Republic of), Tonga (Kingdom of) |
| ***Proposal*:** To study relating to the use of frequency band 51.4-52.4 GHz to enable use by gateway earth stations transmitting to non-geostationary FSS satellite orbit systems (Earth-to-space) |
| ***Background/reason*:**The need for additional FSS spectrum in the 50 GHz range for non-GSO FSS gateway uplinks was established in partial response to WRC‑19 agenda item 9.1, issue 9.1.9 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 the allocation by WRC‑19 to GSO feeder links. Under agenda item 9.1 issue 9.1.9, WRC‑19 added FSS (Earth-to- space) as primary allocation to 51.4-52.4 GHz limited to feeder links of GSO network with a minimum antenna size for earth station at 2.4 m as per RR No. **5.555C**.Now, it is time for the ITU-R to consider expanding the use of the FSS (Earth-to-space) frequency band at 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. Review of RR No. **5.555C** would be required to consider associated regulatory provisions in accommodating non-GSO use of FSS (Earth-to-space) in the frequency band 51.4-52.4 GHz for gateway earth stations. 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. Possible inclusion of the frequency band 51.4-52.4 GHz to the scope of Resolutions **769 (WRC‑19)** and **770 (WRC‑19)** to ensure protection of geostationary satellite networks could also be considered. |
| ***Radiocommunication services concerned*:**The concerned radiocommunication services in the frequency band 51.4-52.4 GHz. |
| ***Indication of possible difficulties*:**TBD |
| ***Previous/ongoing studies on the issue*:**WRC‑19 agenda item 9.1, issue 9.1.9 |
| ***Studies to be carried out by*:**ITU‑R WP 4A as responsible group | ***with the participation of*:**Other relevant WPs, Administrations, Sector Members |
| ***ITU‑R study groups concerned*:**SG 4, SG 5, SG 7 |
| ***ITU resource implications, including financial implications (refer to CV126)*:**No direct financial implications have been identified to date. |
| ***Common regional proposal*:** No | ***Multicountry proposal*: Yes*****Number of countries*:** 2 |
| ***Remarks*** |

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