|  |  |
| --- | --- |
| **World Radiocommunication Conference (WRC-23) Dubai, 20 November - 15 December 2023** | A close up of a sign  Description automatically generated |
|  |  |
|  |  |
| Source Document: APG23-6/OUT-52(Rev.1) | **Addendum 6 to Document xx(Add.25)-E** |
|  | **19 August 2023** |
|  | **Original: English** |
|  | |
| Asia-Pacific Telecommunity Common Proposals | |
| Proposals for the work of the conference | |
|  | |
| Agenda item 10 | |

**Agenda Item 10:**

to 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)**

Resolution **804 (Rev.WRC-19)** - Principles for establishing agendas for world radiocommunication conferences

Introduction

APT proposes a preliminary agenda item for WRC-31 which considers new allocations to fixed, mobile, radio astronomy services and earth exploration-satellite service (passive) in the frequency range 275-325 GHz on a co-primary basis in the Table of Frequency Allocations of the Radio Regulations.

Proposals

ADD ACP/xxA24A6/1

RESOLUTION [ACP/AI10] (WRC‑23)

Preliminary agenda for the 2031 World Radiocommunication Conference

The World Radiocommunication Conference (Dubai, 2023),

…

2 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, and taking account of the results of WRC‑27, to consider the following items and take appropriate action:

2.xto consider new allocations to fixed, mobile, radio astronomy services and earth exploration-satellite service (passive) in the frequency range 275-325 GHz on a co-primary basis in the Table of Frequency Allocations of the RR with the consequential update of RR Nos. 5.138, 5.149, 5.340, 5.564A and 5.565, in accordance with Resolution **[Allocations 275-325 GHz] (WRC-23)**;

ADD ACP/xxA24A6/2

resolution [allocations 275-325 GHz] (WRC‑23)

New allocations to fixed, mobile, radio astronomy services and earth exploration-satellite service (passive) in the frequency range 275-325 GHz on a co-primary basis with the consequential update of RR Nos. 5.138, 5.149, 5.340, 5.564A and 5.565

The World Radiocommunication Conference (Dubai, 2023)

*considering*

1. that studies on technical and operational characteristics of FS and LMS applications operating in the range 275-450 GHz have been carried out by the ITU-R;
2. that studies on coexistence between FS and LMS applications in the frequency range 252-296 GHz have been carried out by the ITU-R;
3. that Recommendation ITU-R RS.2017 provides performance and interference criteria for satellite passive remote sensing up to 1000 GHz;
4. that protection criteria for RAS below 275 GHz are contained in Recommendation ITU-R RA.769, and those above 275 GHz are included in Report ITU-R RA.2189;
5. that bands above 275 GHz in which emission are prohibited are not specified by a provision of the Radio Regulations (RR);
6. that there have been radio observatories and passive remote sensing satellites operating above 275 GHz
7. that bands above 275 GHz for SRD/ISM applications are not specified by a provision of the RR;
8. that propagation characteristics of the frequencies above 275 GHz are being studied by ITU-R Study Group 3;
9. that technologies above 275 GHz are considered as emerging enablers to enhance the radio interface to support short-range and high capacity transmission;
10. that sub-THz and terahertz spectrum have been discussed for use by various active service applications after WRC-19,
11. that it is appropriate to ensure that the frequency allocations above 275 GHz to FS, MS, RAS and EESS (passive) correspond to up-to-date technical and operational characteristics for those applications;
12. that the first international standard operating in the frequency range 252-325 GHz developed as the IEEE 802 standard supports the channel bandwidths between 2.16 GHz and 69.12 GHz;
13. that ETSI launched the Industry Specification Group on Terahertz for THz standard development of MS applications,

*recognizing*

1. that radiocommunication services allocated in the frequency range 248-275 GHz in the 2001 edition of the RR have not been modified for more than 20 years;
2. that RR Nos. **5.149, 5.340** and **5.565** were updated at WRC-03, WRC-07 and WRC-12, respectively;
3. that RR No. **5.564A** was added at WRC-19;
4. that a number of bands in the frequency range 275-1 000 GHz are identified for use by administrations for passive services, such as the radio astronomy service (RAS), the Earth exploration satellite service (EESS) (passive) and the space research service (SRS) (passive);
5. that four bands in the frequency range 275-450 GHz are identified for use by administrations for the implementation of land mobile (LMS) and fixed service (FS) applications;
6. that administrations wishing to make available frequencies in the 275-1 000 GHz range for active service applications are urged to take all practicable steps to protect these passive services from harmful interference until the date when the Table of Frequency Allocations is established for the relevant frequencies;
7. that new identification for radiolocation service applications in the frequency range 275-700 GHz may be considered under WRC-27 agenda item,

*noting*

1. that Reports ITU-R F.2416, M.2417 and RS.2431 provide technical and operational characteristics of FS, LMS and EESS (passive) applications in the frequency range 275-450 GHz, respectively;
2. that Report SM.2352 contains technology trends of active services in the frequency range 275-3 000 GHz;
3. that Report SM.2540 provide sharing and compatibility study results between land-mobile, fixed and passive services in the frequency range 275-450 GHz;
4. that Reports ITU-R RS.2194 contains passive bands of scientific interest to EESS/SRS from 275 to 3 000 GHz,

*resolves to invite the ITU Radiocommunication Sector*

1. to study technical and operational characteristics of systems in the FS, MS, RAS and EESS (passive) operating in the frequency range 275-325 GHz;
2. to conduct sharing and compatibility studies between FS/MS and RAS/EESS (passive) in the frequency range 275-325 GHz;
3. to study possible new allocations to FS, MS, RAS and EESS (passive) on a co-primary basis in the frequency range 275-325 GHz, while ensuring the protection of existing services in the adjacent frequency bands, taking into account the results of the studies under *invites ITU-R* 1 and 2;
4. to update RR Nos. **5.138, 5.149, 5.340, 5.564A** and **5.565**, as appropriate, taking into account the results of the studies under *invites ITU-R* 3

*invites the 2031 World Radiocommunication Conference*

to review the results of these studies and to establish the Table of Frequency Allocations in the frequency range 275-325 GHz which allocate FS, MS, RAS and EESS (passive) on a co-primary basis and update RR Nos. **5.138, 5.149, 5.340, 5.564A** and **5.565**, as appropriate,

*encourages administrations*

to participate actively in the studies by submitting contributions to the ITU Radiocommunication Sector,

*instructs the Secretary-General*

to bring this Resolution to the attention of the international and regional organizations concerned.

**Reasons:** Proposal for a preliminary agenda item of WRC-31 agenda item to consider new allocations to fixed, mobile, radio astronomy and earth exploration-satellite service (passive) in the frequency range 275-325 GHz.

|  |  |
| --- | --- |
| **Subject: Proposal for WRC-27 agenda item** | |
| **Origin: APT** | |
| ***Proposal*:**  *To consider new allocations to fixed, mobile, radio astronomy services and Earth exploration-satellite service (passive) in the frequency range 275-325 GHz on a co-primary basis in the Table of Frequency Allocations of the RR with the consequential update of RR Nos.* ***5.138****,* ***5.149****,* ***5.340****,* ***5.564A*** *and* ***5.565****, in accordance with Resolution* ***XXX (WRC-23)****.* | |
| **Background/reason:**  ITU-R WP 5A developed Report ITU-R M.2517 on coexistence between LMS and FS applications in the frequency range 252-296 GHz and revised Report ITU-R M.2417 on the technical and operational characteristics of LMS applications in the frequency range 275-450 GHz. WP 5C is also revising Report ITU-R F.2416 on the technical and operational characteristics of FS applications in the frequency range 275-450 GHz which also provides measured radiation patterns of several antennas in the frequency range 220-500 GHz. WP 5D developed a new ITU-R Report M.2516 on future technology trend of terrestrial IMT systems towards 2030 and beyond in which THz communications are considered as one of technologies to enhance the radio interface of future IMT systems. WP 1A updated Report ITU-R SM.2352 on technology trends of active service applications in the frequency range 275-3 000 GHz, and conducted the sharing and compatibility studies between LMS/FS and passive service applications in the frequency range 275-450 GHz under WRC-19 agenda item 1.15. WP 7C developed Recommendation ITU-R RS.2017 for the performance and interference criteria for satellite passive remote sensing. WP 7D developed Recommendation ITU-R RA.769 on protection criteria used for radio astronomical measurements up to 275 GHz, and those parameters in the frequency range 275-3 000 GHz is presented in Report ITU-R RA.2189. Thus, ITU-R Working Parties have studied a number of THz spectrum issues with respect to active and passive services and published many ITU-R Reports to provide THz spectrum information to the future competent WRC agenda item.  The first international standard using the frequency range 252-325 GHz was published as the IEEE 802 standard and this standard supports the systems whose channel bandwidths vary from 2.16 GHz to 69.12 GHz. The applications supported by this standard are wireless links for intra-device communication (e.g., board-to-board communication), close proximity communication, wireless data centers, and backhaul/fronthaul links, which correspond to FS and MS applications. Due to the worldwide utilization of those devices in the near future, it is expected to establish the Table of Frequency Allocations in the frequency range 275-325 GHz to coexist FS and MS with other active and passive services.  In the specific frequency range 275-325 GHz, the frequency bands 275-286 GHz, 296-306 GHz and 313-325 (356) GHz are identified for use by administrations for EESS (passive) and SRS (passive) applications and the frequency band 275-323 GHz is identified for RAS applications (see RR No. **5.565**). The frequency bands 275-296 GHz, 306-313 GHz and 318-325 (333) GHz are identified for FS and LMS applications (see RR No. **5.546A**)**.** There may be a possibility for RLS applications to identify frequency bands in the specific frequency range, if the WRC-27 preliminary agenda item 2.1 has been approved by WRC-23. The use in footnote of expression “identified” only expresses the interest of some administrations in the future and current use of those bands for the specific applications. In order to protect the passive services from harmful interference caused by active services and achieve coexistence among active services, it would be required to allocate new frequency bands for the mobile, fixed, radio astronomy services and EESS (passive) in the frequency range 275-325 GHz with the consequential update of RR Nos. **5.138, 5.149, 5.340, 5.564A** and **5.565**.  Considering the above background, it is therefore proposed to consider new allocations to mobile, fixed, radio astronomy services and EESS (passive) on a primary basis in the frequency range 275-325 GHz in the Table of Frequency Allocations of the RR with the consequential update of RR Nos.**5.138, 5.149, 5.340, 5.564A** and **5.565**. | |
| ***Radiocommunication services concerned*:**  Some frequency bands for use by administrations for LMS, FS, RAS and EESS (passive) applications are identified in the frequency range 275-325 GHz. | |
| ***Indication of possible difficulties*:**  Sharing and compatibility studies between active and passive services and coexistence studies among active services. | |
| ***Previous/ongoing studies on the issue*:**  Recommendations ITU-R F.699, RA.314, RA.769 and RS.2017  Reports ITU-R F.2416, M.2417, M.2516, M.2517, RA.2189, RS.2194, RS.2431, SM.2352, SM.2450, M.[IMT.ABOVE 100 GHz] | |
| ***Studies to be carried out by*:**  ITU-R WP 1A | ***with the participation of*:**  Administrations and Sector members of the ITU-R |
| ***ITU‑R study groups concerned*:**  SG3, SG5 and SG7 | |
| ***ITU resource implications, including financial implications (refer to CV126)*:**  This agenda item will be studied within the standard ITU-R procedures and planned budget. No extra cost is foreseen. | |
| ***Common regional proposal*:** Yes/No | ***Multicountry proposal*:** Yes/No  ***Number of countries*:** TBD |
| ***Remarks*** | |