

RESOLUTION 721 (WRC-23)

Studies on potential new allocations to fixed, mobile, radiolocation, amateur, amateur-satellite, radio astronomy, Earth exploration-satellite (passive and active) and space research (passive) services in the frequency range 275-325 GHz with the consequential update of Nos. 5.149, 5.340, 5.564A and 5.565

The World Radiocommunication Conference (Dubai, 2023),

considering

- a)* that technologies above 275 GHz are considered as emerging enablers to enhance the radio interface to support high-capacity transmission and scientific research;
- b)* that sub-terahertz and terahertz spectrum have been discussed for use by various active service applications;
- c)* that there have been radio observatories and passive remote sensing satellites operating above 275 GHz;
- d)* that studies on technical and operational characteristics of fixed service and land mobile service (LMS) applications operating in the frequency range 275-450 GHz have been carried out by the ITU Radiocommunication Sector (ITU-R) and resulted in No. **5.564A** being added by WRC-19;
- e)* that amateur and amateur satellite service applications have been utilized in the frequency range 275-450 GHz in a number of countries;
- f)* that Recommendation ITU-R RS.2017 provides performance and interference criteria for satellite passive remote sensing up to 1 000 GHz;
- g)* that protection criteria for the radio astronomy service (RAS) above 275 GHz is included in Report ITU-R RA.2189;
- h)* that frequency bands above 275 GHz in which emissions are prohibited are not specified by a provision of the Radio Regulations;
- i)* that propagation characteristics of frequencies above 275 GHz are being studied by ITU-R Study Group 3;
- j)* that international standards are being developed for equipment operating in the frequency range 275-450 GHz;

k) that it is appropriate to ensure that any frequency allocations above 275 GHz to the fixed, land mobile, radiolocation, amateur, amateur-satellite, radio astronomy and Earth exploration-satellite (passive and active), space research (passive) and any other radiocommunication services should correspond to up-to-date technical and operational characteristics for those applications and take into account compatibility between these services,

noting

a) that Nos. **5.564A** and **5.565** apply to the frequency range 275-450 GHz;

b) that Reports ITU-R F.2416, ITU-R M.2417 and ITU-R RS.2431 provide technical and operational characteristics of fixed service, LMS and Earth exploration-satellite service (EESS) (passive) applications in the frequency range 275-450 GHz, respectively;

c) that Report ITU-R SM.2352 contains technology trends of active services in the frequency range 275-3 000 GHz;

d) that Report ITU-R SM.2540 provides sharing and compatibility study results between land mobile, fixed and passive services in the frequency range 275-450 GHz;

e) that Report ITU-R RS.2194 contains passive bands of scientific interest to the EEES/space research service (SRS) from 275 to 3 000 GHz,

recognizing

a) that the frequency range 275-325 GHz is also identified for other radiocommunication services and that those identifications are used by a variety of incumbent systems in many administrations, and that the protection of these services, including adjacent services, should be studied;

b) that for the determination of the incumbent services, the relevant provisions of the Radio Regulations in force apply;

c) that identifications do not preclude the use of the frequency bands by any application of the services to which the frequency bands are identified and do not establish priority over any other applications of radiocommunication services;

d) that the frequency bands 296-306 GHz, 313-318 GHz and 333-356 GHz may only be used by fixed and land mobile service applications when specific conditions to ensure the protection of EEES) (passive) applications are determined in accordance with Resolution **731 (Rev.WRC-23)**;

e) that in the frequency bands 275-323 GHz, 327-371 GHz, 388-424 GHz and 426-442 GHz, where radio astronomy applications are used, specific conditions (e.g. minimum separation distances and/or avoidance angles) may be necessary to ensure protection of radio astronomy sites from land mobile and/or fixed service applications, on a case-by-case basis in accordance with Resolution **731 (Rev.WRC-23)**,

resolves to invite the ITU Radiocommunication Sector to complete in time for the 2031 world radiocommunication conference

1 studies on the spectrum needs for the fixed, mobile, radiolocation, amateur, amateur-satellite, radio astronomy, Earth exploration-satellite (passive and active) and space research (passive) services in the frequency range 275-325 GHz;

2 studies on sharing and compatibility between services referenced in *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2031 world radiocommunication conference* 1;

3 studies on possible new allocations to services referenced in *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2031 world radiocommunication conference* 1, while ensuring the protection of passive services in the frequency range 275-325 GHz and adjacent frequency bands, taking into account the frequency bands identified in Nos. **5.564A** and **5.565**, and the results of the studies under *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2031 world radiocommunication conference* 1 and 2,

invites the 2031 world radiocommunication conference

based on the results of the studies, to consider potential new allocations in the frequency range 275-325 GHz for radiocommunication services referenced in *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2031 world radiocommunication conference* 1 and update Nos. **5.149**, **5.340**, **5.564A** and **5.565**, as appropriate,

encourages administrations

to participate actively in the studies and provide the information required for the studies listed under *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2031 world radiocommunication conference* 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.