

## RESOLUTION 145 (REV.WRC-19)

**Use of the frequency band 27.9-28.2 GHz by  
high-altitude platform stations in the fixed service**

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

*considering*

- a)* that WRC-97 made provision for the operation of high-altitude platform stations (HAPS), also known as stratospheric repeaters, within a  $2 \times 300$  MHz portion of the fixed-service allocation in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz;
- b)* that No. **4.23** specifies that transmissions to or from HAPS shall be limited to the frequency bands specifically identified in Article **5**;
- c)* that, at WRC-2000, several countries in Region 3 and one country in Region 1 expressed a need for a lower frequency band for HAPS due to the excessive rain attenuation that occurs at 47 GHz in these countries;
- d)* that some countries in Region 2 have also expressed an interest in using a frequency range lower than those referred to in *considering a)*;
- e)* that, in order to accommodate the need expressed by the countries referred to in *considering c)*, WRC-2000 adopted Nos. **5.537A** and **5.543A**, which were modified at WRC-03 and then again at WRC-07 to permit the use of HAPS in the fixed service in the frequency band 27.9-28.2 GHz and in the frequency band 31-31.3 GHz in certain Region 1 and 3 countries on a non-harmful interference, non-protection basis;
- f)* that the frequency band 27.9-28.2 GHz is already heavily used or planned to be used by a number of different services and a number of other types of applications in the fixed service;
- g)* that while the decision to deploy HAPS can be taken on a national basis, such deployment may affect neighbouring administrations, particularly in small countries;
- h)* that the ITU Radiocommunication Sector (ITU-R) has conducted studies dealing with sharing between systems using HAPS in the fixed service and other types of systems in the fixed service in the frequency band 27.9-28.2 GHz, leading to Recommendation ITU-R F.1609;
- i)* that results of some ITU-R studies indicate that, in the frequency band 27.9-28.2 GHz, sharing between fixed-service systems using HAPS and other conventional fixed-service systems in the same area will require appropriate interference mitigation techniques to be developed and implemented;
- j)* that ITU-R has produced Recommendation ITU-R SF.1601 containing methodologies for evaluating interference from fixed-service systems using HAPS into geostationary-satellite systems in the fixed-satellite service in the frequency band 27.9-28.2 GHz;

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k) that HAPS technical issues could continue to be studied in order to determine appropriate measures for protecting the fixed service and other co-primary services in the frequency band 27.9-28.2 GHz,

### *resolves*

1 that, notwithstanding No. **4.23**, in Region 2 the use of HAPS within the fixed-service allocations in the frequency band 27.9-28.2 GHz shall not cause harmful interference to, or claim protection from, other stations of services operating in accordance with the Table of Frequency Allocations of Article **5**, and, further, that the development of these other services shall proceed without constraints by HAPS operating pursuant to this Resolution;

2 that any use by HAPS of the fixed-service allocation at 27.9-28.2 GHz pursuant to *resolves* 1 above shall be limited to operation in the HAPS-to-ground direction;

3 that the administrations listed in No. **5.537A** which intend to implement systems using HAPS in the fixed service in the frequency band 27.9-28.2 GHz shall seek explicit agreement of concerned administrations with regard to their stations of primary services to ensure that the conditions in No. **5.537A** are met, and those administrations in Region 2 which intend to implement systems using HAPS in the fixed service in these frequency bands shall seek explicit agreement of concerned administrations with regard to their stations of services operating in accordance with the Table of Frequency Allocations of Article **5** to ensure that the conditions in *resolves* 1 are met;

4 that administrations planning to implement a HAPS system pursuant to *resolves* 1 above shall notify the frequency assignment(s) by submitting all mandatory elements of Appendix **4** to the Radiocommunication Bureau for the examination of compliance with *resolves* 3 above,

### *invites the ITU Radiocommunication Sector*

1 to continue to carry out studies on the appropriate interference mitigation techniques for the situations referred to in *considering i*);

2 to develop protection criteria for the mobile service having primary allocations in the frequency band 27.9-28.2 GHz from HAPS in the fixed service and include the results of these studies in existing or new ITU-R Reports/Recommendations, as appropriate.