question itu-r 226-2/7

Frequency sharing between the radio astronomy service  
and other services in bands between 67 and 275 GHz

(1997-2012-2017)

The ITU Radiocommunication Assembly,

considering

*a)* that many atomic and molecular spectral lines are observed at frequencies in the mm‑wave spectrum between 67 GHz and 275 GHz, 67 GHz being the lowest frequency at which telluric opacity permits ground-based radio astronomy observations above 60 GHz, and 275 GHz being the highest frequency at which spectrum allocations presently exist;

*b)* that these spectral lines, together with continuum observations, provide information about star formation, including the formation of planets in other solar systems, the existence of pre‑biological molecules and extra-terrestrial life, the physics and chemistry of the interstellar medium, the history of the universe, and about other astrophysical processes of great interest;

*c)* that spectral lines of great importance to radio astronomy may not fall within bands allocated to the radio astronomy service;

*d)* that sharing between radio astronomy observatories and ground-based transmitters is facilitated in the mm-wave band by topography and by the attenuation provided by atmospheric gases;

*e)* that large mm-wave telescopes represent significant collaborative scientific investments;

*f)* that mm-wave observatories are, wherever practicable, located in high and isolated remote sites, to take maximum advantage of extremely dry atmospheric conditions and a low interference environment;

*g)* that geographical sharing between the radio astronomy service and other services may be feasible with the creation of protection zones by national administrations; and

*h)* that Question ITU-R 145/7 addresses conditions for frequency sharing between radio astronomy and other radio services,

further considering

that systems of active services in the frequency range of 67 GHz to 275 GHz are under development,

decides that the following Questions should be studied

1 What are the technical and operational characteristics of systems operating at frequencies between 67 and 275 GHz in the radio astronomy service?

2 What are the radiocommunication services with which the radio astronomy service can share frequency bands between 67 and 275 GHz?

further decides

1 that the results of the above studies should be included in (a) Recommendation(s) and/or Report(s), as appropriate;

2 that the results of studies should be brought to the attention of the other Study Groups;

3 that the above studies should be completed before 2027.

Category: S2