

QUESTION ITU-R 226/7*

Frequency sharing between the radio astronomy service and other services in bands above 70 GHz

(1997)

The ITU Radiocommunication Assembly,

considering

- a) that a large number of atomic and molecular spectral lines are observed at frequencies above 70 GHz, and that many of these lines are of great importance to astronomy but only few fall within bands allocated to radio astronomy;
- b) that these spectral lines along with continuum observations provide unique 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 Doppler-shifted lines of great interest for the study of the early universe have been detected at frequencies well outside the bands allocated to radio astronomy;
- d) that sharing between radio astronomy observatories and ground-based transmitters is facilitated in the mm-wave and submm-wave spectral regions by topography, by the atmospheric absorption bands, and by the natural attenuation provided by atmospheric gases;
- e) that there are only a small number of mm-wave and submm-wave observatories operating worldwide;
- f) that several large mm-wave and submm-wave telescopes, which will incorporate the most advanced technology, are planned or are under construction, and that they represent large collaborative scientific investments by the participating countries;
- g) that mm-wave and submm-wave observatories are, wherever practicable, located in isolated remote sites, to take maximum advantage of extremely dry atmospheric conditions and a low interference environment;
- h) that geographical sharing between the radio astronomy service and other services may be feasible with the creation of protection zones by national administrations; and
- j) that there is extensive development being carried out to provide radiocommunication services at mm-wavelengths, e.g. for the transmission of large volumes of data, and for mass market devices such as vehicular radars,

decides that the following Question should be studied

- 1** What are the services with which the radio astronomy service can share frequency bands above 70 GHz?
- 2** What are the conditions for frequency sharing between radiocommunication services above 70 GHz using active and passive systems?

* In the year 2009, Radiocommunication Study Group 7 extended the completion date of studies for this Question.

further decides

- 1 that the results of the *decides* above should be the subject of a report to be prepared as a contribution to the Report of the Conference Preparatory Meeting to the WRC-07.