

QUESTION ITU-R 118-2/7*

Factors which affect frequency sharing between data relay satellite systems and systems of other services

(1990-1996-2000)

The ITU Radiocommunication Assembly,

considering

- a) that data relay satellites are used to relay mission-gathered data, television and voice communications in manned missions, orbit-tracking data such as position and velocity of the spacecraft, and telecommands for guidance and control of the spacecraft;
- b) that frequencies between 2 and 30 GHz used by both near-Earth satellite and data relay satellites are shared with other service systems;
- c) that frequency bands between 20 and 30 GHz are becoming more heavily occupied by existing and planned systems;
- d) that frequency sharing between space stations of a data relay satellite network and terrestrial systems is feasible, provided:
 - that appropriate power flux-density limits are applied to the emissions of space stations of the data relay satellite networks;
 - that appropriate e.i.r.p. density limits are applied to terrestrial service stations;
- e) that interference to stations of a data relay satellite network from the emissions of fixed terrestrial stations may result in levels of interference that exceed the protection level when within view of these stations;
- f) that the use by data relay satellites of interference mitigation techniques such as frequency agility, adaptive interference cancellation and avoidance of mainbeam-to-mainbeam coupling may facilitate sharing with the terrestrial services,

decides that the following Question should be studied

- 1** What are the services with which, and under what conditions, is the sharing of frequency bands practicable for data relay satellite systems?
- 2** What are the limits of power flux-density from data relay satellite emissions needed to protect other services sharing frequencies between 2 and 30 GHz?
- 3** What are the e.i.r.p. density limitations to be applied to terrestrial service stations to facilitate sharing with data relay satellite networks?
- 4** What are the implications of interference to stations in a data relay satellite network from the emissions of fixed terrestrial stations in contrast to interference from the emissions of non-stationary, randomly located terrestrial stations?

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

5 What are the preferred interference mitigation techniques for use by data relay satellite networks operating above 20 GHz?

further decides

- 1 that the results of the above studies should be included in (a) Recommendation(s);
- 2 that the above studies should be completed by 2011.