question itu-r 246/7

Future bandwidth requirements for the space
research service (deep space)

(2009)

The ITU Radiocommunication Assembly,

considering

*a)* that there will be continuous growth in the number of deep-space missions and in bandwidth requirements per mission in the future, as a result of the application of new higher data rate technologies;

*b)* that development of large arrays of antennas on Earth and of higher power transmitters on board may enable a single mission to increase its data rate requirement by two orders of magnitude;

*c)* that, consequently, total spectrum requirements for deep-space research in the foreseeable future may exceed the total spectrum that is currently allocated for deep-space research;

*d)* that frequency and bandwidth availability affect the performance of a telecommunication link;

*e)* that many factors affect the selection of a technically-preferred frequency band, including propagation characteristics, technology maturity, availability of ground and space segment equipment, and interference environment;

*f)* that wideband signals in deep-space research carrying high-rate science data around 100 Mbps or higher may require a less stringent interference criterion than those protecting deep‑space downlinks in the existing allocations,

decides that the following Questions should be studied

**1** What is the total bandwidth required for deep-space research missions through the year 2030?

**2** How does the total bandwidth requirement identified in *decides* 1 compare with the currently allocated total bandwidth for deep-space research?

**3** Can the existing space research service allocations support the requirements identified in *decides* 2?

**4** What are the interference criteria required for wideband deep-space downlinks (space‑to‑Earth)?

**5** What are the general constraints on sharing with other services and their systems that may be imposed by the telecommunication characteristics of the new deep-space wideband systems?

**6** What are the bandwidth requirements for the related uplinks (Earth-to-space)?

further decides

**1** that the results of the above studies be included in one or more Recommendations or Reports;

**2** that the studies should be completed by 2027.

Category: S2