

QUESTION ITU-R 203-1/7*

Characteristics and telecommunication requirements for space very long baseline interferometry

(1993-1997)

The ITU Radiocommunication Assembly,

considering

- a) that the angular resolution of measurements made by very long baseline interferometry (VLBI) techniques is limited by the distance between two observing stations;
- b) that, compared to the largest possible distance between two observing stations on Earth, this baseline distance may be substantially increased by locating one or more of the observing stations in space;
- c) that VLBI measurements made in space eliminate the limitations of ground-based observations caused by absorption, path length fluctuations and atmospheric noise contributions;
- d) that space VLBI will provide invaluable knowledge of physical parameters leading to highly accurate determination of:
 - radiosources structure;
 - deep-space navigation;
 - geodynamics;
 - astrometry;
 - satellite's orbit parameters;
- e) that the transmission of wideband space VLBI data from space-to-Earth is required;
- f) that space VLBI systems require the transmission of highly accurate time/phase reference signals from Earth-to-space and space-to-Earth,

decides that the following Question should be studied

- 1** What are the technical telecommunication characteristics and operational requirements of space VLBI systems?
- 2** What are the orbital characteristics of spacecraft engaged in space VLBI?
- 3** What are the frequency bands most suitable for the precise time/phase transmission?
- 4** What are the frequency bands and bandwidths most suitable for the wideband data transmission space-to-Earth?

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