

The following is a copy of the paper delivered by the United States embassies in Beijing, New Delhi, Tokyo, Moscow and the U.S. mission to the European Union in Brussels to the foreign ministries.

Intergovernmental Meetings on Lunar and Martian Spectrum Coordination

In the next couple of years, all of our space agencies will be initiating new Lunar and Martian space exploration programs. Human space missions will follow these robotic spacecraft within a decade. All of these space exploration missions have one thing in common: they all require use of the radio frequency spectrum. The problem is that the international Table of Frequency Allocations established by the International Telecommunication Union (ITU) has allocated a limited amount of spectrum to be used for these programs. The sharing of this spectrum is left to users (in this case the space agencies) to work out through a coordination process.

The United States has identified six space agencies that have either announced concrete plans or have indicated that they are planning to mount robotic and perhaps human Lunar and/or Martian exploratory missions. Those space agencies are

- China National Space Administration (CNSA)
- European Space Agency (ESA)
- Indian Space Research Organization (ISRO)
- Japan Aerospace Exploration Agency (JAXA)
- National Aeronautics and Space Administration (NASA)
- Russian Aviation and Space Agency (Roskosmos)

Before any of these space agencies gets too far along in its planning process and before significant resources have been committed to the planning and design of the missions, the United States believe it is important that a comprehensive spectrum use plan be developed. The United States also believe that this process can assist in determining if there is sufficient radio frequency spectrum available to support all of the space programs free from harmful interference from other agency space missions, some of which could be operating in the same Lunar or Martian environment.

The United States is inviting the four governments and their civilian space agencies, along with the European Union and the European Space Agency, to a three-day Intergovernmental Meeting on Lunar and Martian Spectrum Coordination chaired by the Department of State planned for August 8-10, 2006 at the Jet Propulsion Laboratory in Pasadena, CA. The main purpose of the meeting is to establish an inter-agency spectrum use plan for Lunar and Martian space exploration that will allow the space agencies to plan and design their respective missions with the assurance that they can operate free from harmful interference. In preparation for this important meeting, the U.S. is proposing two technical level meetings to be held in February and June 2006. Governments and the European Union are requested to send the appropriate technical and

decision making officials to these preparatory meetings. The exact dates and locations for these meetings will be announced in the coming weeks.

At the technical meeting in February, each space agency will be given the opportunity to present its plans for robotic and human Lunar and Martian space missions. The United States will be prepared to present its spectrum requirements for its space missions in the form of its draft space communications architecture. Each of the space agencies should be prepared to present, by frequency band, its spectrum requirements to support its space missions. Space agencies that are not that far along in their spectrum planning are still encouraged to participate and to share what information they may have available on their space communications architecture and their communications requirements. The objective is to share information in order for each space agency to be able to plan and to develop a communications architecture for its space missions that will not receive or cause harmful interference. In addition, the space agencies need to determine collectively if there is sufficient radio spectrum currently allocated by the ITU to support all of the planned space missions through a coordination process or if additional radio spectrum needs to be allocated. That determination will be made in the course of developing an Interagency Spectrum Use Plan for Lunar and Martian Space Exploration.

NASA currently has agreements in place with space agencies that allows for interoperability and mutual support in the near earth environment. Cooperation in space tracking and data relay from space probes and robotic missions has resulted in extensive cost savings, including the elimination of the need for additional space tracking stations. At the technical meetings, NASA wants to explore the desire for this same type of mutual support for spacecraft to the Lunar and Martian environments. Mutual support could be particularly important if common safety procedures could be adopted to support human space missions. In summary, interoperability and cross support would help control costs for all space agencies, enhance safety, and help ensure the success of the space missions. Although it is expected that each space agency will use its own communication systems and its own technology, it is anticipated that cooperation would be based on the development of common standards among all of the space agencies.

The United States would appreciate receiving confirmation of your government's interest in participating in these intergovernmental meetings by November 15, 2005. Any questions regarding the purpose or the details of these meetings can be directed to the United States embassy or mission to the European Union. NASA officials that will be attending the Space Frequency Coordination Group meeting in Beijing in October and various upcoming ITU meetings will be knowledgeable about the details of the meetings and will be available for one-on-one consultations at that time.