SPACE POWER SYMPOSIUM (C3)
Technologies and Experiments related to Wireless Power Transmission (2)

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CONCEPT STUDY ON SSPS ON-ORBIT EXPERIMENT USING ISS (EUROPE/JAPAN INTERNATIONAL MISSION)

Abstract

In the last years, a significant change in global energy and environmental security situation, combined with an exponentially accelerating pace of technological change, leads to revisit the SPS concept. The SPS (Laser Type) key-technologies are: - High efficiency electric-power to laser conversion in space - High accuracy laser beam pointing from space to the ground - High efficiency laser to electric-power conversion on the ground To demonstrate these technologies on-orbit, the ISS External Facility would be very useful. So EADS/ASTRIUM and Mitsubishi Heavy Industries jointly study a “SSPS On-orbit Experiment using the ISS (Europe / Japan International mission)”. This mission as an end-to-end demonstration has many merits. By using the ISS External Facility, this mission does not have to prepare a “BUS System.” The ISS as experimental platform provides all interfaces which are required, enables also an enhancement of experiment capabilities due to the on-board resources available, could have accessability in-space, could provide in-situ equipment maintenance and up-grade, and would potentially enable the investigation of equipment for space degradation effects. By sharing the development with Europe and Japan, this mission would provide the benefit of reduced cost. By using both European and Japanese Ground Sites, this mission has multiple experiment opportunities. In this paper, the concept of a “SSPS On-orbit Experiment using the ISS (Europe / Japan International mission)” is described and its merits are outlined.