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Author: Dr. Shi-Wei Dong
China Academy of Space Technology (Xi'an), China

DEMONSTRATION MISSION DESIGN OF MICROWAVE POWER TRANSMISSION ON LOW
EARTH ORBIT

Abstract

In the updated space solar power satellite development roadmap of China, five steps from demonstration to operation are conceived. The first demonstration will be implemented with a low earth orbit (LEO) satellite mission, which includes both the inter-satellite transmission and the satellite-to-the-Earth modes. The two transmission modes could be employed to evaluate the MPT performance and function respectively. So the beam collection efficiency, the transmission power and the total efficiency will be considered fully for the inter-satellite transmission. As for the satellite-to-the-Earth transmission, the rectified power will be shown intuitively. The beam steering error will be measured and investigated. International cooperation is suggested in this demonstration mission, possibly with various rectenna sites around the world.