

SPACE POWER SYMPOSIUM (C3)
Wireless Power Transmission Technologies, Experiments and Demonstrations (2)

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SANDWICH MODULE PROTOTYPE PROGRESS FOR SPACE SOLAR POWER

Abstract

Space Solar Power (SSP) is broadly defined to be the collection of solar energy in space and its wireless transmission for use on earth. It has been observed that the implementation of such a system could offer energy security, environmental, and technological advantages to those who would undertake its development. Among recent implementations commonly proposed for SSP, the Modular Symmetrical Concentrator (MSC) concept has received considerable attention. It employs an array of modules for performing conversion of concentrated sunlight into microwaves for transmission to earth. While prototypes of such modules have been designed and developed previously by several groups, none have been subjected to the challenging conditions inherent to the space environment and the possible solar concentration levels in which an array of modules would be required to operate. The research described herein details our team's efforts in the development of photovoltaics, power electronics, microwave conversion electronics, and antennas for "sandwich" module prototypes, and their planned implementation and testing under realistic operating conditions.