

SPACE POWER SYMPOSIUM (C3)
Space Power Technologies and Techniques (2)

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IMPROVEMENT STUDY ON RECTENNA EFFICIENCY

Abstract

A highly efficient rectenna in microwave power transmission is considered as a technical matter of the greatest importance solved toward Space Solar Power System in future. In NASA reference system, a RF-to-dc conversion efficiency of 89% was used for microwave power receiving system in the feasibility study for Space Solar Power System, which number of RF-to-dc conversion efficiency might be presumed to be a guide for improvement of rectenna efficiency hereafter. It is reported that a RF-to-dc conversion efficiency is 70% or so in most of rectenna developed at a 5.8 GHz input microwave power and most of the power loss might be caused by the efficiency of a diode in a rectenna. The paper describes a discussion on the input microwave power to rectenna at 5.8 GHz , a review on the performance of diodes used previously for rectenna and a diode performance required for rectenna with the target RF-to-dc conversion efficiency of at the 5.8 GHz input microwave power.