Abstracts

Power Combining in an Array of Microwave Power Rectifiers (Dec. 1979 [T-MTT])

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Microwave power rectifiers have been developed previously with greater than 85-percent RF-to-dc conversion efficiency. To obtain useful power levels for proposed free-space microwave power transmission applications, numerous rectifier outputs are interconnected in series and/or parallel to share a common dc load. This work analyzes the resultant efficiency degradation when identical rectifiers operate at different RF power Ievels as caused by the power beam taper. Both a closed-form analytical circuit model and a detailed computer-simulation model are used to obtain the output dc load line of the rectifier. The efficiency degradation is nearly identical with series and parallel combining, and the closed-form analytical model provides results which are similar to the detailed computer-simulation model.

❑ Return to main document.