Abstracts

A high-efficiency dual-frequency rectenna for 2.45- and 5.8-GHz wireless power transmission

Young-Ho Suh and Kai Chang. "A high-efficiency dual-frequency rectenna for 2.45- and 5.8-GHz wireless power transmission." 2002 Transactions on Microwave Theory and Techniques 50.7 (Jul. 2002 [T-MTT]): 1784-1789.

A dual-frequency printed dipole rectenna has been developed for the wireless power transmission at 2.45- and 5.8-GHz (industrial-scientific-medical bands). For operating at dual band, a new uniplanar printed dipole antenna is developed using a coupling method. A GaAs Schottky barrier diode analysis is performed, and a proper device requirement is discussed to have high RF-to-dc conversion efficiencies at both frequencies. A novel coplanar stripline (CPS) low-pass filter integrated with two additional open-ended T-strip CPS bandstop filters effectively block higher order harmonics generated from the diode. The measured conversion efficiencies achieved at free space are 84.4 and 82.7% at 2.45 and 5.8 GHz, respectively.

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