ABSTRACT

This paper presents the experimental design and characterization of an optimized radio-frequency energy-harvesting prototype device to operate in the GSM 900 band. The energy harvesting device is based on an off-the-shelf GSM antenna, Schottky diode rectifier, and was implemented on a standard FR4 substrate. The experimental results show that the harvesting device is capable of generating 0.3 V DC voltage at an input power of −17 dBm at 956 MHz frequency. The measured efficiency of the developed energy harvesting system was 68%, at RL = 1.6 kΩ, which is a very significant performance relative to other prototypes of the same class reported in literature.