

Wireless solar container communication station hybrid energy





Overview

Can a hybrid solar and RF energy harvester be used in spwsns?

A hybrid solar and RF energy harvester for applications in SPWSNs has been proposed in this paper. A planar slot antenna element backed by substrate-integrated waveguide cavity was designed at first. Then, based on the antenna element, an 8×8 antenna array operating at 5.8 GHz was built to receiving the RF energy with a high gain.

What is a hybrid solar and RF energy harvester?

A hybrid solar and RF energy harvester is proposed for applications in self-powered wireless sensor nodes. A planar slot antenna array backed by substrate integrated waveguide (SIW) cavity is produced for RF energy harvesting. A designed rectifier connected to the antenna array converts the received RF energy into DC energy.

How to integrate DC energy from solar and RF sources?

To integrate the DC energy harvested from both solar and RF sources, a power management circuit has been designed and fabricated, utilizing the BQ25504 chip. The circuit schematic is shown in Figure (a).

Is a 2.4 GHz rectenna based on a solar cell antenna array?

A 2.4 GHz rectenna based on a solar cell antenna array. *IEEE Antennas Wirel Propag Lett.* 2019;18 (12):2716–2720. doi:10.1109/LAWP.2019.2950178 Shi Y, Nan YH. Hybrid power harvesting from ambient radiofrequency and solar energy. *IEEE Antennas Wirel Propag Lett.* 2022;21 (12):2382–2386. doi:10.1109/LAWP.2022.3193952 Yang Y, et al.



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