Special antenna for solar power generation

In the journal Optical Materials Express, the researchers report that lab tests of their new antenna showed that it can harvest 100 microwatts of power, enough to power simple devices, from low power radio waves. This was possible because the metamaterial used to make the antenna exhibits perfect absorption of radio waves and was designed to work with low ...

Altitude Angle and Azimuth Angle of Sun from the Observer O [12]. For the horizontal coordinates, the azimuth angle, is given as 0 0 in north direction, east +90 0, west 270 0 and the south 180 0 .

A solar cell has been integrated with a dipole antenna for energy harvesting and wireless communications 19, whereas a solar-cell-integrated antenna has been proposed ...

antenna 1 solar cell H A feed point ground antenna 3 L L S L A T A Fig. 2 Printed inverted-F antenna parameters Table 1: Integrated element results Frequency (GHz) -10 dB bandwidth (%) Simulated solar antenna 1 2.45 1.7 Measured solar antenna 1 2.45 1.6 Simulated solar antenna 2 2.46 1.8 Measured solar antenna 2 2.45 1.5 Simulated solar ...

This paper describes the integration of microstrip slot array antennas with dye-sensitized solar cells that can power array antennas at 5.8 GHz, ensuring normal communications.

The proposed solar cell antenna can provide a dual-band performance with the ability of DC power generation, which can be a potential candidate for future green low-carbon communication. ...

The radiating patch element of a patch antenna was replaced by a solar cell. Direct Current (DC) generation remained the original feature of the solar cell, but additionally it was now able to ...

The efficiency of this type of antenna should be near 100%. The top rectifier absorbs a few portions of solar radiation and it hampers little to reach solar radiation to the antenna. According to the processes of electric power generation of four models, the expected efficiency is presented in the figure 6 to easy understanding.

Launch Segment. Launch requirements of SBSP satellites, at least in the beginning, will be similar to those of ComSats. The platforms that will serve as the base of their operations in space will be lifted from Earth"s gravitational field by the same private, commercial, and government rockets and placed into the specific orbits - low, medium, GEO or even ...

Therefore, smart antennas with intelligent beamforming capability have an important role in these areas. The purpose of this Special Issue is to present the latest technology and developments in antennas for the

next-generation of communication systems. All researchers in the field are invited to contribute their original, unpublished works.

No special permission is required to reuse all or part of the article published by MDPI, including figures and tables. ... the exploration of higher frequency bands becomes crucial. This Special Issue, "Terahertz Antenna Technologies for Next-Generation Wireless Systems", aims to showcase cutting-edge research and innovations in this rapidly ...

Aside from these, this super solar approach moreover incorporate inverted F-shaped patch antennas that are placed vertically 44,45 on the solar array, quarter-wave metal plate solar antenna, 46,47 ...

Keywords: slot antenna, solar cell, radiation pattern, dual-function device Classification: Microwave and millimeter-wave devices, circuits, and modules 1. Introduction ... enhance the ability of DC power generation, a solar cell array with 36 solar cells have been used as the radiation structure of the proposed GPS antenna [20, 21, 22]. How-

Space-based solar power is a tantalizing idea, but so impractical, complex, and costly that it just won"t work, says the former head of space power systems at the European Space Agency. Here"s why.

To enhance the ability of DC power generation, a solar cell array with 36 solar cells have been used as the radiation structure of the proposed GPS antenna [20, 21,22]. However, the antenna has a ...

Alternating-to-Direct current conversion in solar antennas [68][69][70]. Rectification nowadays drops the solar antennae collection efficiency (> 80%) to about 0.01% [71,72], but might be improved ...

Survey of Ground Antenna Systems for Solar Power Satellite Application Corey Bergsrud Department of Electrical Engineering University of North Dakota 243 Centennial Drive, Stop 7164 Grand Forks, ND 58202-7165 +1-218-791-8539 corey rgsrud@my.und Sima Noghanian Department of Electrical Engineering University of North Dakota 243 Centennial Drive, Stop ...

This special section is accepting novel and unpublished works on antenna technologies or metasurface-based antenna designs for RFEH and/or WPT applications. ... 3-D antennas for wireless energy harvesting/power transfer systems; ... Antenna designs with solar panel for hybrid energy harvesting systems; Keywords: Antenna; Antenna array;

Solar Arrays and transmitting antenna (1979 NASA/DOE Reference Model) ... [21] Special Section on SSPS, Radio Science Bulletin. Nos.310 and 311, ... looked at the generation of solar power using ...

The system consists of a 190mm x 190mm low-cost FR4 substrate and a Wilkinson network to combine the power of 8 helical wire antennas sprinkled along with the solar cells.

Special antenna for solar power generation

Solar Power Satellites - written by Anagh K. S, Ramshesh K. S, Pourush J published on 2013/05/08 download full article with reference data and citations ... The 1979 baseline design assumed a 1-km diameter transmitting antenna, fed by a 50-km2 solar array. Prices for baseline electlical power. ... provides power to terrestrial markets by ...

The concept of space-based solar power, also referred to as solar power satellites (SPS), has been evolving for decades. In 1968, Dr. Peter Glaser of Arthur D. Little, Inc. introduced the concept using microwaves for power transmission from geosynchronous orbit (GEO) to an Earth-based rectifying antenna (rectenna).

monopole antenna integrated with a solar cell for wearable applications s presentedwa in [18]. By cutting certain shapes on the solar cell, a Vivaldi antenna with an end-fire radiation pattern was designed in [19].To enhance the ability of DC power generation, a solar cell array with 36 solar cells have been used as the radiation

3.1. Structure of solar cell antenna We propose a solar cell antenna with mesh patch. A mathematical model that we have already studied to minimize the power losses of the solar cell antenna and ...

recent years. By integrating the solar panel and wideband antenna into one platform, the solar antenna can be employed for wireless cell communication and photovoltaic power generation simultaneously.