Solar panel receiver

We propose a self-reverse-biased solar panel optical receiver for energy harvesting and visible light communication. Since the solar panel converts an optical component into an electrical ...

The work in [6] reported a system performance enhancement mechanism using a pair of focusing lenses positioned after the LED and before the silicon solar panel receiver and reported a data rate of ...

Visible Light Communication Using a Solar-Panel Receiver Rohail Sarwar 1, Bin Sun 1, Meiwei Kong, Tariq Ali, Chuying Yu, Bo Cong2 and Jing Xu1 1Optical Communications Laboratory, Ocean College ...

Fig. 1 depicts the experimental setup of the proposed UWOC system using a self-powered solar panel as a detector. The transmitter module, the water tank and the low-cost solar panel are presented in the insets. The transmitter was a 30-mW single-mode pigtailed 405-nm LD (Thorlabs LP405-SF30) employing an LD controller and a temperature controller to set ...

This paper proposes a novel design of an optical wireless communications (OWC) receiver using a solar panel as a photodetector. The proposed system is capable of simultaneous data transmission and energy harvesting. The solar panel can convert a modulated light signal into an electrical signal without any external power requirements.

Solar power receivers are a specific type of heating systems that convert solar radiation into the heat capacity of the transport media. The major part of a solar-based system is a solar receiver, which collects solar energy, transforms it to the desired location, and transports that heat to a fluid passing through the collector (usually air, liquid, or oil).

Solar panel has been introduced in the visible light communication (VLC) technology due to its large signal receiving area and higher efficiency than traditional photodiode (PD) receivers. In this study, the performance of the solar panel receiver for ...

A new type of wireless data communication using solar panels to act as receivers and to create power for the technology could have a huge positive impact on millions of people around the world. Li-Fi is a bidirectional, high speed and fully networked optical wireless communications (OWC) technology; similar to Wi-Fi. ...

A Signal Conditioning Unit is proposed in solar panel-based VLC receiver to regular the input signal which was deformed from output of solar panel, to investigate power consumption issues for VLC systems in combination with power transreceiver technologies. Visible Light Communication (VLC) is a rapidly growing technology. This technology has ...

Hence, an OWC system with a solar-panel-based receiver can satisfy the requirements of simultaneous communication and energy harvesting. AB - In this paper, we experimentally ...

The presented theory is supported with an experimental implementation of orthogonal frequency division multiplexing (OFDM), thus, proving the validity of the analysis and demonstrating the feasibility of the proposed receiver. This paper proposes a novel design of an optical wireless communications (OWC) receiver using a solar panel as a photodetector. The proposed system ...

This paper proposes a novel design of an optical wireless communications (OWC) receiver using a solar panel as a photodetector. The proposed system is capable of simultaneous data transmission and energy harvesting. The solar panel can convert a modulated light signal into an electrical signal without any external power requirements. Furthermore, the ...

An OWC system with a solar-panel-based receiver can satisfy the requirements of simultaneous communication and energy harvesting and it is shown that the load does not hamper the communication capabilities. In this paper, we experimentally demonstrate the feasibility of optical wireless communication (OWC) systems with a solar panel as a photo-detector. The ...

Attempts by Malik et al. focused on the receiver circuit in order to address the intrinsic distortions arising from the silicon-based solar panel [74]. The latter can be seen as a low-pass filter ...

In this paper, a solar panel utilized as a photodetector with simultaneous energy harvesting is proposed in visible light communication (VLC). The solar cell is a self-styled passive device, which can convert optical signals into electrical signals. The generated energy can potentially be used to power user terminals or at least to prolong operation time. This work is an important step ...

A self-inverting biased solar panel optical receiver for energy harvesting and visible light communication is proposed in the literature [12], which This work is licensed under a Creative Commons ...

WANGet al.:SOLAR-PANEL RECEIVER FOR OWCWITH SIMULTANEOUS ENERGY HARVESTING 1613 Fig. 1. Solar panel model for energy harvesting. on the idea that information and energy can be transmitted simultaneously over the communication channel [19]. In the context of the "Internet of Things," it appears that this topic is of particular relevance.

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We propose a Signal Conditioning Unit in solar panel-based VLC receiver to regular the input signal which was deformed from output of solar panel. A solar panel acts as photo-detector and also powers the receiver

circuit by converting the light signal into electronic signal. The frequency response of our solar panel is 50 kHz after conditioning.

We propose a self-reverse-biased solar panel optical receiver for energy harvesting and visible light communication. Since the solar panel converts an optical component into an electrical component, it provides both energy harvesting and communication. The signal component can be separated from the direct current component, and these components are used for ...

Several studies have been presented to enhance the performance of visible light communication systems with multi-transmitters, new channel modeling techniques, micro-LEDs and solar panel receivers ...

It is also possible to utilize solar panels as receivers. In this paper, we present an experimental performance evaluation of a vehicular VLC system with a truck headlight as the transmitter and a solar panel as the receiver. First, we characterize the frequency response of two different solar panels and measure their bandwidth.

N2 - This paper proposes a novel design of an optical wireless communications (OWC) receiver using a solar panel as a photodetector. The proposed system is capable of simultaneous data transmission and energy harvesting. The solar panel can convert a modulated light signal into an electrical signal without any external power requirements.

The optical receiver usually employs light sensors such as photodiodes, image sensors, photoresistors or solar panel. In the last decades, VLC technology has explored the use of solar panels as data receivers, since they offer the service of power generation, in addition to, a larger surface area to capture the light beam.

On the Design of a Solar-Panel Receiver for Optical Wireless Communications With Simultaneous Energy Harvesting August 2015 IEEE Journal on Selected Areas in Communications 33(8):1-1