

PHOTOVOLTAIC SOLAR CELL LIKE RECEIVER FOR ELECTROMAGNETIC WAVES IN VHF-UHF BANDS

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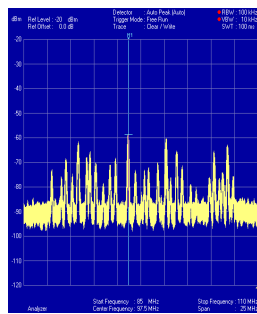
Extended abstract

This paper describes the photovoltaic solar cell like receiver for electromagnetic waves in VHF-UHF bands and the application of photovoltaic solar cell in planar antenna structures. The radiating patch element of a planar antenna is replaced by a solar cell. The original feature of a solar cell (DC current generation) remains, but additionally the solar cell is now able to receive and transmit electromagnetic waves.

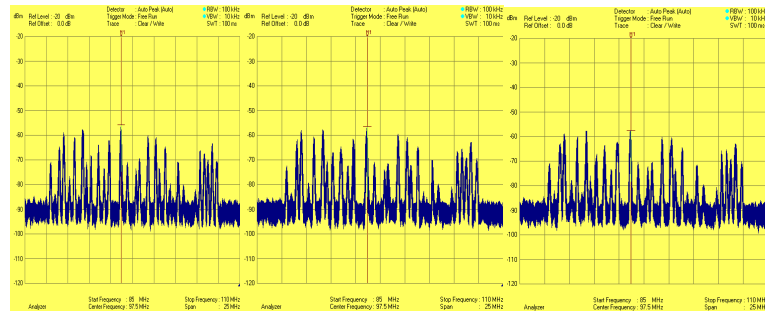
, Essentially, the paper presents an experimental study on behaviour of a standard solar pannel as a receiver in the radio-tv and GSM bands.

Received signals are compared with a physical planar antenna model (a z shape conductor) and no major difference exist.

Othe investigations shows that between illuminated panel and the same pannel in dark (at night) the signal received is quite the same, even the semiconductor solar cell status is very different.



a)



b)

c)

d)

Received signals a) model; b) solar cel lat night; c) solar cell at sun; d) solar cell at sun; 45 degree

Main conclusion is that a solar cell can be used as receiving antenna in the VHF-UHF domain.