Polarization Reconfigurable Bow Tie Antenna for RF Energy Harvesting

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ABSTRACT

RF energy harvesting provides the most suitable solution for powering devices wirelessly compared to solar due to its continuous availability. This paper presents a planar cross coupled bowtie antenna operating at WiMAX frequency range suitable for RF energy harvesting. PIN diodes are being incorporated to make it reconfigurable. Frequency as well as polarization diversity is achieved by varying the diode bias conditions. When a single diode is made ON it is able to achieve circular polarization. So by varying the bias conditions the mismatch losses can be reduced. It operates from 3.4 - 3.6 GHz and has a wide beam width enabling RF wave reception at a wider angle and hence much efficient compared to other narrow beam antenna.

Keywords: Reconfigurable, RF energy harvesting, PIN diode, Beamwidth