

Design of Beam Steering Resonator Antenna for 5G using Switch-Coupling Parasitic Element

Abstract

This paper proposed beam steering MIMO antenna for 5G application at 3.5 GHz of mid-band. The beam steering performance is based on the integration of the driven parasitic element and switches. The RT Duroid 5880 is used as substrate with thickness 1.57mm. The geometry of the center rectangular patch antenna to achieve the desired resonance frequency which 3.5GHz. The integration of the HPNP 4005 PIN Diode with the parasitic element is tested which the antenna manages to steer the direction at -30° , 0° and $+30^\circ$ with gain of 6.4dBi. In the proposed design, a simple biasing circuit is employed to control all the PIN Diodes switches. The proposed MMO antenna could be potential for 5G application.

Keywords

Beam Steering; Parasitic Element; Pin Diode Switching; Reconfigurable Antenna