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Switchable Beam Antenna with Five Planar Element using PIN Diode in Elevation Plane

Abstract

This work focuses on the switchable beam parasitic patch antenna for the point to point communication system. This concept gives more flexibility due to their ability to modify the radiation and providing multiple functionalities. This work focuses on two points directly to minimize the number of PIN Diode and to maximize its reconfiguration capabilities. First, the concept of two parasitic element is addressed. The mutual coupling effect between both driven and parasitic has manage to steer the beam to-28{\mathrm{o}}, \ 0{\mathrm{o}} and +28o different angles in a single layer. The design consists of four parasitic elements with full ground and four pin diode switch HPND-4005, five different directions have been reached which are-450,-30{\mathrm{o}}, \ 0{\mathrm{o}}+30{\mathrm{o}} and +450. The parasitic patch antenna has achieved high gain of 8. 92dBi at 5.8 GHz with the beam ability to steer unti145o for both side of the parasitic element.

Keywords

High gain antenna; Pattern reconfigurable antenna; Reconfigurable antenna; Switchable beam antenna