

1.8GHz CIRCULARLY POLARISED MICROSTRIP PATCH ANTENNA

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ABSTRACT

Global system for mobile system (GSM) is one of the highly-used standards for worldwide communication system. This article presents a circularly polarized microstrip patch antenna that able to work under GSM 1800 device. More specifically, this project will impose the performance of antenna regarding the impedance matching and appropriate radiation pattern for circular polarization in both conceptual as well as fabricated product. Agilent Advance Design System (ADS) 2009 is used to simulate and optimized the result. A few approaches are used to obtain better return loss and improve the narrow bandwidth, major drawback of using patch antenna.

The simulated results give a return loss of -29.817 at center frequency 1.806GHz. A reflection coefficient of 0.0084 is achieved and VSWR is calculated to be 1.017. Besides, the antenna also possesses an input impedance of $50.9 + j4.4 \Omega$. The simulated result indicates a considerably well match between transmission line and the load.

The final output of the design was transferred to Gerber file to get the PCB layout from PCAM software. The prototype is fabricated on double sided FR4 printed circuit board by putting structure of patch antenna on one side and ground plane on the another side.