Design an Extended Circular Planar Microstrip Patch Antenna for UWB Application

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Abstract

The aim of this paper is to design and simulation the Microstrip Patch Antenna which covers the Ultra Wide Band 3.1 to 10.6 GHz. This paper covers study of basics and fundamentals of Microstrip patch antenna. The various parameters of the antenna are the dimensions of the patch and ground planes and the separation between them and this antenna is fabricated using an h=1.6mm thick FR4 substrate (εr=4.4), which occupies a coverage area of 26.6 Ws x 29.3 Ls mm2. This is a simulation based study. The design and simulation of the antenna is carried out using CST microwave Studio simulation software. This design is Extended Circular Planar Microstrip Patch Antenna that uses defected ground plane which covers the entire UWB range. Return loss curve, antenna gains and the Far field results are shown for designed antenna. The proposed antenna has return loss of -70dB at 3.8 GHz frequency with VSWR=1.0006835, impedance bandwidth of approx. 9 GHz from 3 GHz to 12 GHz at UWB range.

References
10. Microstrip patch Antenna Antenna-theory.com

Index Terms

Computer Science Wireless

Keywords

Flame Retardant 4(FR4), Ultra Wide Band (UWB), Computer Simulation Technology (CST), Computer Aided Design (CAD).