

Design of Broadband E Shaped Patch Antenna For Wireless Networks Applications

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Abstract

Communication is one of the main areas of research in the world of communication systems today and a study of communication systems is imperfect exclusive of an perceptive of the operation and fabrication of antennas. This was the major motive for selecting a project focusing on this field. The field of antenna learn is an extremely huge one. A broadband inverted E shaped microstrip patch antenna is proposed and experimentally investigated. The antenna employ description E formed patch with coaxial survey feed method. A sample of the planned antenna has been fabricated and considered for electromagnetic analysis, including the impedance bandwidth, radiation pattern, and antenna gain. The planned antenna has a dimension of 40mm by 30mm, leading to broad bandwidths casing 2.5GHz. Steady radiation patterns diagonally the working bandwidth are experimental. In addition, a parameter revise is conducted to make possible the propose and optimization process.

Keywords: broadband E shape, patch antenna, HFSS, 3D polar plot, VSWR

INTRODUCTION

Micro strip patch antenna is a well-known printed resonant structure consisting of a conduct scrap, a substrate and a ground level surface. Micro strip antenna patch shape can be of any continuous shape such as square, rectangular, circular, ring and elliptical, where the rectangular patch is the most common. These antennas are moderately easy to construct because of their simple planar pattern and the dense structure. In its unique propose, the antenna has slight bandwidth, which is more suitable for multiband operations.

The micro strip feed line is also a conducting strip, usually of much smaller width compared to the patch. The micro strip line feed is simple to formulate, simple to match by controlling the inset arrangement and rather simple to model. However, as the substrate depth increases, plane waves and spurious feed emission increase, which bound the bandwidth for convenient designs. But, generally the thickness depends on the type of the substrate used For FR-4 substrate; thickness used is 0.8 or 1.6mm in common.

LITERATURE SURVEY

Design and study of an efficient U-Shape Rectangular Microstrip patch antenna for the intention of WLAN for working frequency 2.45GHz. Patch antenna is a good-looking, with light weight, conformability, and easy manufacture properties. U-shaped dual slot on the patch of the Microstrip fed patch antenna enlarge the bandwidth. As well the antenna is compact in size and can be utilized for several applications. Hugely, E-slot antennas are designed for wideband, multiband or frequency tuning operation.

PROPOSED E-SHAPED ANTENNA

In the proposed system, an E shaped Micro strip patch antenna has been made at a resonant frequency of 2.5GHz. The feeding technique used is coaxial feed wherein the coaxial cable is subjected inside the substrate. Here the substrate used is Duroid having a dielectric constant of 2.2. The patch dimension is 40mm and 30mm. Instead of driving model analysis, my paper deals with the driving terminal analysis where the s parameters are solved based on voltage and current. The return loss obtained is -15dB at 2.5GHz. The substrate use is Duroid having a dielectric constant of 2.2.