E-Shaped Patch Antenna at 4.87 GHz

ABSTRACT

This paper represents designing & analysis of E-shape microstrip patch antenna for wireless communication. Low volume, low profile configuration, easily mounted, light weight, low fabrication cost is the advantages of this antenna. The operating frequencies of antenna are 2.97 GHz and 4.85 GHz, the substrate FR4 is used for proposed antenna with dielectric constant 4.2 and thickness of 1.7mm. Two parallel slots are cut to perturb the surface current path, which provides a bandwidth of 11%. The E-shape has return loss of -28 dB of and -14.03 dB at operating frequencies 2.97 GHz and 4.85 GHz respectively. Designing and simulation of this antenna has been done by the help of HFSS Software. This antenna is fed by a co-axial probe feeding. In this paper, the effects of different types of antenna parameters studied.

EXISTING SYSTEM

- They can be designed to operate over a large range of frequencies (1- 40 GHz) and easily combine to form linear or planar arrays.
- An E-shaped patch antenna is easily formed by cutting two slots from a rectangular shape. By cutting the slots from a patch, gain, return loss and bandwidth of microstrip antenna can be improved.
- These techniques include increasing the thickness of the dielectric substrate, decreasing dielectric constant and using parasitic patches.

PROPOSED SYSTEM

- The proposed work aims at size reduction, increasing gain, wide bandwidth, multiple functionality and system-level integration.
- The operating frequencies of antenna are 2.97 GHz and 4.85 GHz, the substrate FR4 is used for proposed antenna with dielectric constant 4.2 and thickness of 1.7mm.
- To increasing the gain and bandwidth of microstrip antennas.
- In this, an attempt has been made to design a single band microstrip antenna without any geometrical complexities .

SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS:

- Processor - intel core i3
- RAM - 2GB
- Hard Disk - 20 GB

SOFTWARE REQUIREMENTS:

- Ansoft HFSS(High Frequency Structure Stimulator)

REFERENCE

[1] International Journal of Scientific Research Engineering & Technology (IJSRET).

[2] R. Divya and M. Priya, "Design and characterization of E-shape microstrip patch antenna for wireless communication," International Journal of Advanced Trends in Computer Science and Engineering, vol. 2, no. 2, March 2013.

[3] A. Yadav, B. Chauhan, and A. Jain, "Microstrip symmetrical E-shape patch antenna for the wireless communication systems," International Journal of Emerging Technology and Advanced Engineering, vol. 2, iss. 12, December 2012.

[4] B.-K. Ang and B.-K. Chung, "A wideband E-shaped microstrip patch antenna for 5-6 GHz wireless communications," Faculty of Engineering Multimedia University, Cyberjaya, Malaysia, 2007.

[5] P. Tomar, J. K. Bhutto, and S. Rankawat, "Effect of feed position for same E-type microstrip patch antenna," International Journal of Electronics and Communication Engineering, vol. 7, no. 1, 2014.