**LIST OF ABBREVIATIONS**

|  |  |
| --- | --- |
| 1D | One dimensional |
| 2D | Two dimensional |
| 3D | Three dimensional |
| ADS | Advanced design system |
| EDA | Electronic device acquisation |
| EM | Electromagnetic |
| NB | Narrow band |
| PSO | Particle swarm optimization |
| RF | Radio frequency |
| SIGVIEW | Signal viewer |

The functional characteristics and output parameters like VSWR, Return loss, Radiation pattern of these Microstrip Patch Antennas varies depending upon the technique used. Comparison of above mentioned parameters have been made on the basis of feeding.

**ABSTRACT**

An ultra-wide band pentagon antenna is designed and simulated using CST microwave studio for detecting the tumour present in the brain. It is operating at the range 3.67 GHz to 13.2 GHz in free space. The antenna is designed using Copper . The dimensions of the antenna are 50\*50mm2.For improving the bandwidth and directivity modifications is made in the patch and ground. The input radiations from the antenna are allowed to penetrate into the human head phantom with three layers namely skin-outer layer, skull-middle layer and brain- inner layer containing tumour. From the output signal various statistical parameters are determined to accurately detect the tumour.

on Microstrip Patch Antennas with their simulated performance characteristics. Both models have been designed and simulated in CST which is an electronic design automation software system

RMS Root Mean Square dB Decibel

dBi Decibel Isotropic

ISM Industrial Scientific Medical

MHz Mega Hertz

GHz Giga Hertz

Medical imaging plays a central role in the diagnosis of brain tumours. Early imaging methods invasive and sometimes dangerous, pneumoencephalography and cerebral angiography have been abandoned in favour of non-invasive, high resolution techniques, especially magnetic resonance imaging (MRI) and computed tomography (CT) scans. Neoplasms will often show as colored masses in CT or MRI results.